Final Report:
HIT Environmental Scan

December 2021

Submitted to:
Carrie Ortega, HIT Coordinator
Iowa Medicaid Enterprise
Department of Human Services
cortega@dhs.state.ia.us

Prepared by:
Kathy Schneider, PhD
Miriam Isola, DrPH, FAMIA CPHIMS
David Troiano, RPh, CPPS

Sum-IT Health Analytics, LLC
http://www.sumithealthanalytics.com/
Using strategic analytics to transform your mountain of data into powerful, actionable insights

SUM-IT
HEALTH ANALYTICS

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction

The American Recovery & Reinvestment Act of 2009 (ARRA, or Recovery Act), established the Health Information Technology for Economic Clinical Health Act (HITECH Act)[1]. HITECH was intended to improve health care quality, safety and efficiency. It requires that the Centers for Medicare and Medicaid Services (CMS) provide incentive payments under Medicare and Medicaid to "meaningful users" of electronic health records (EHRs).[2] HITECH provided several funding sources, including various grant programs through the Office of the National Coordinator for Health Information Technology (ONC) for States to achieve improved health care outcomes through implementation of health information technology (HIT).[3]

A: Objectives

CMS requires state Medicaid agencies to perform periodic environmental scans as part of their HITECH funding. This document includes information from previous environmental scans, as well as detailed information from the current environmental scan performed to close out the HITECH Medicaid Promoting Interoperability Program. The environmental scans are a key component of the State Medicaid Health IT Plan (SMHP), which is a document that is required to be submitted to CMS annually.[4]

The Iowa Medicaid Enterprise (IME) contracted with Sum-IT Health Analytics to:

- Summarize the historical HIT environmental scans and other studies of the state of HIT in Iowa.
- Conduct a final Iowa environmental scan that includes: 1) a survey to better understand the current HIT and interoperability capabilities and future plans of Iowa provider practice and clinic organizations as they relate to exchanging information with providers outside their organization, and 2) key informant interviews with leaders of Iowa state agencies, payers, and provider associations to assess program impact and identify opportunities for future HIT activities.

B: Background

In 2011, CMS established the Medicare and Medicaid EHR Incentive Programs (now known as the Promoting Interoperability Programs) to encourage eligible professionals (EPs), eligible hospitals (EHs), and Critical Access Hospitals (CAHs) to adopt, implement, upgrade, and demonstrate meaningful use of certified electronic health record technology (CEHRT).[5] CMS defined and set objectives for each of the three stages of meaningful use:

[1] https://www.congress.gov/111/plaws/publ5/PLAW-111publ5.pdf Accessed 12/04/2021.
[2] https://www.hhs.gov/sites/default/files/ocr/privacy/hipaa/understanding/coveredentities/hitechact.pdf Accessed 12/04/2021.
[3] https://www.healthit.gov/topic/onc-hitech-programs Accessed 11/18/2021.
[4] https://www.ecfr.gov/current/title-42/chapter-IV/subchapter-G/part-495#495.332 Accessed 12/04/2021.
[5] https://www.cms.gov/regulations-and-guidance/legislation/ehrincentiveprograms Accessed 11/18/2021.

Stage 1: data capture and sharing, including providing patients with electronic copies of health information,

Stage 2: advanced clinical processes, and ensuring that the meaningful use of EHRs supported the aims and priorities of the National Quality Strategy, and

Stage 3: improved outcomes. This final stage of meaningful use is largely focused on interoperability, data sharing, and patient access to medical data.

The next section of this chapter provides a high-level overview of the foundational elements of both national and Iowa HIT activities. The programs described below provide context for both the questions posed and the findings for the Iowa HIT environmental scans.

1. National Programs

Certification Commission for Health Information Technology (CCHIT) EHR certification program. In 2009 when the HITECH Act was passed, there was a voluntary Certification Commission for Health Information Technology (CCHIT) EHR certification program[6], however there were no Federal or State standards related to EHR capabilities. At that time, the EHR products on the market were largely designed to register patients and to facilitate billing. Some were beginning to digitize the medical record with the intention to replace paper medical records. As part of ARRA, the ONC worked with CCHIT to identify certified EHRs to help providers qualify for federal incentive payments.[7] Note that CCHIT ceased all operations in 2014 and EHR certification is performed by ONC-Authorized Certification Bodies (ONC-ACB) and ONC-Authorized Testing Laboratories (ONC-ATL).[8]

Health Information Technology Standards Panel (HITSP). The Health Information Technology Standards Panel (HITSP)[9] worked to develop harmonizing and integrating standards to meet clinical and business needs for sharing information. Importantly, their public-private partnership proposed technology/formats and coding/vocabulary/semantics standards for various types of documents and use cases. In 2009, the standards pertained to EHR products only, and then additional standards were developed to specify interoperability and data exchange use cases - such as a patient discharge summary, or electronic lab reports. Note that HITSP ended in early 2010 and the interoperability standards and specifications are addressed by the ONC Interoperability Standards Advisory (ISA).[10]

State HIE Cooperative Agreement Program. In 2009, ONC announced the State HIE Cooperative Agreement Program[11] to fund states' efforts to rapidly build capacity for exchanging health information across the health care system both within and across states. This funding was awarded to a single State Designated Entity (SDE) within each state. In Iowa, this was the

[6] https://www.cchit.org/ Accessed 11/18/2021.
[7] https://www.cchit.org/find/ Accessed 11/18/2021.
[8] https://www.healthit.gov/topic/certification-ehrs/onc-acb-surveillance Accessed 12/04.2021.
[9] https://www.hitsp.org/ Accessed 11/18/2021.
[10] https://www.healthit.gov/isa/ Accessed 12/04/2021.
[11] https://www.healthit.gov/topic/onc-hitech-programs/state-health-information-exchange Accessed 11/18/2021.

Iowa Department of Public Health (IDPH) which received $8.375 million[12] to implement the governance, financing, technical infrastructure, operations, and policy necessary to increase connectivity and information sharing among providers (statewide and nationally) to improve patient-centered health care and population health.

The HIE Cooperative Agreement Program was designed to ensure that health care providers and hospitals could meet national standards and meaningful use requirements.[13] At the outset, the expectations of the HIE were modest, requiring compatibility with continuity of care documents (CCD) and visit summaries. Demonstrating the secure sharing of information among providers was an essential part of using electronic health records in a meaningful way to qualify for the Medicare and Medicaid EHR Incentive Programs.

Health Information Security & Privacy Collaboration (HISPC). There are Federal and State laws, policies and business practices related to the privacy and security of health information that also impact the exchange of health information. Even prior to the HITECH Act, the Health Information Security & Privacy Collaboration (HISPC)[14] was engaging stakeholders in multi-state collaborative privacy and security projects focused on analyzing consent data elements in state law; studying intrastate and interstate consent policies; developing tools to help harmonize state privacy laws; developing tools and strategies to educate and engage consumers; developing a toolkit to educate providers; recommending basic security policy requirements; and developing inter-organizational agreements. This foundational work from HISPC was leveraged to continue collaborative efforts to address privacy and security issues that emerged in HITECH.

Direct Trust. An outgrowth of the HISPC efforts was to develop the "trusted entity" concept – whereby health information exchange (HIE) providers – including Direct Secure Messaging or health information exchange networks (HIN) could obtain certification. That is, they could become an accredited health information service provider (HISP). Some EHR companies offer HISP[15] services to their clients as a part of their product while other EHR companies partner with HISPs to provision addresses to their users.

Direct Secure Messaging (which is often referred to simply as "Direct") leverages HISP services to facilitate interoperability between disparate health technologies and organizations. It is considered a "push" interoperability mechanism because of the sender "pushing" a message to the receiver. DirectTrust[16,17] develops and maintains the policies, standards, and practices that support the trusted and effective use of Direct Secure messaging within the DirectTrust Network.

---

[12] https://www.healthit.gov/topic/onc-hitech-programs/state-health-information-exchange Accessed 11/18/2021.
[13] https://www.healthit.gov/sites/default/files/page/2017-09/get-the-facts-about-state-hie-program-2.pdf
[14] https://www.healthit.gov/topic/health-information-security-privacy-collaboration-hispc Accessed 11/18/2021.
[15] https://www.himss.org/resource-environmental-scan/directtrust Accessed 11/18/2021.
[16] https://directtrust.org/what-we-do/trust-framework Accessed 11/18/2021.
[17] https://www.himss.org/resource-environmental-scan/directtrust Accessed 11/18/2021.

2. Iowa Programs and Activities

In 2008, the Iowa legislature formed the e-Health Executive Committee and Advisory Council under the direction of Iowa Department of Public Health (IDPH). The public-private, multi-stakeholder collaborative effort to promote health IT was known as "Iowa e-Health".[18]

Iowa HIE. The ONC contracting requirements for the State HIE Cooperative Agreement Program included provisions related to privacy and security, coordination with public health and monitoring hospital and provider meaningful use.[19] Although IDPH had discussions with the state of Nebraska to potentially leverage their HIE – which had been successfully operating as NEHII (currently doing business as CyncHealth), the state determined they could best fulfill ONC requirements by pursuing their own HIE. IDPH and IME collaborated to create an Iowa HIE by soliciting a technology partner using a competitive bidding process. Xerox was awarded the contract to implement and maintain the HIE infrastructure and launched the Iowa Health Information Network (IHIN).[20] From the outset, Iowa HIT stakeholders intended to have a neutral statewide HIE that could join with other state/regional HIEs. According to the IDPH State Fiscal Year 2014 eHealth Evaluation Report.[21]

> *"Competing health care providers and insurers determined a single statewide HIE which operated as a public-private partnership would best meet information exchange needs. In 2011 the 4 largest health care systems and the largest private insurer each signed a Memorandum of Understanding (MOU) with IDPH whereby they agreed to use the IHIN and provide financial support for ongoing operations. This reassurance allowed IDPH to proceed with signing a vendor contract to build the IHIN*."

Initially, IHIN was designed to offer two main services – Direct Secure Messaging and query-based exchange.[22] These IHIN services were rolled out in phases with Direct Secure Messaging offered in 2012 and query-based exchange offered in 2014.

Promoting Interoperability Program. Since 2011, IME has been administering the Iowa Medicaid Promoting Interoperability Program which provides incentives to certain healthcare providers throughout Iowa for adoption and meaningful use of CEHRT.[23] The Iowa Medicaid Promoting Interoperability Program began receiving attestations 1/1/2011.

Some key features of the program include:

- Administration of Medicaid incentive payments to Medicaid EPs and EHs,
- Oversight of the Medicaid EHR Incentive Program, including routine tracking of meaningful use attestations and reporting mechanisms, and

[18] https://www.healthit.gov/sites/default/files/plan-summary-iowa_060911.pdf Accessed 11/18/2021.
[19] https://www.healthit.gov/sites/default/files/factsheets/get-the-facts-about-state-hie-program.pdf Accessed 11/18/2021.
[20] https://dhs.iowa.gov/sites/default/files/2020_Iowa_SMHP_Final_v_9.1.pdf?111120212357, p. 29-33. Accessed 11/18/2021.
[21] IDPH State Fiscal Year 2014 eHealth Evaluation Report, p. 3.
[22] https://www.healthit.gov/sites/default/files/plan-summary-iowa_060911.pdf
[23] https://www.ecfr.gov/current/title-42/chapter-IV/subchapter-G/part-495#sp42.5.495.d Accessed 11/18/2021

- Pursuit of initiatives that encourage the adoption of certified EHR technology for the promotion of health care quality and the electronic exchange of health information.

The background of the various federal and state programs is important to keep in mind as we examine historical and current environmental scans later in this document. Program objectives, requirements and associated timelines influenced the timing of the progress toward interoperable HIT in Iowa.

C. How this document is organized

This document contains data from historical HIT Iowa environmental scans, a summary of the most recent survey data, analysis of the findings, and recommendations for IME to facilitate continued improvements in HIT and interoperability/data sharing in Iowa.

This document is organized as follows:

Chapter 2: Historical Iowa HITECH Environmental Scans. This chapter contains a summary of the Iowa HIT environmental scans and other HIT information obtained through 2019.

Chapter 3: Current Environmental Scans and Additional Data (2020-2021). This chapter contains a summary of the data and other findings from the most current HIT surveys of hospitals and provider practices. The current objectives and requirements related to interoperability, data sharing and patient interactions were the focus of these current surveys. It also contains a summary of key informant interviews and discussions with professional associations.

Chapter 4: Summary and Analysis of Changes Over Time. This chapter highlights the differences between the beginning and the end of the HITECH program, and provides some context to interpret the changes that have occurred.

Chapter 5: Looking Forward. This chapter provides an overview of current and upcoming national and state programs and activities. It identifies opportunities for IME and the State of Iowa to continue to make improvements to realize the value of HIT investments.

Appendix A: List of Acronyms and Abbreviations. Provides the definitions for the abbreviations and acronyms used in this document.

Chapter 2: Historical Iowa HIT Environmental Scans and Other HIT Information

The objective of this section is to inform the reader what we have already accomplished to date with our information intake for the purpose of completing a final Environmental Scan as part of the State Medicaid Health IT Plan, a CMS HITECH program requirement.

A. Background

Sum-IT started the final environmental scan update by taking an inventory of the HIT information discovered across the HITECH program, within Iowa, and any other relevant information to inform on HIT information that already existed. We then collected the questions asked in prior surveys and pulled out the common themes. A gap analysis was performed and then we determined what was needed to inform the current HIT environment in Iowa and looking to the future what is important to know and inform leadership. The information intake process was helpful to formulate both survey and key informant interview questions.

Included below is a summary of the information reviewed (Table 1). The Iowa State Medicaid Health Information Technology Plan[24] contains summaries of prior environmental scans as well.

Table 1: Historical Scan Summary

Year	Name of Report or Other Information	Description (and hyperlinks)
2020	Governor's Healthcare Innovation and Visioning Roundtable	January 24, 2020 Meeting – Roundtable Recommendations and Roundtable Presentation Slides Follow link for: *more information*
2020	Strategy on Reducing Regulatory and Administrative Burden Relating to the Use of Health IT and EHRs	The report includes information pertaining to EHR use and the Promoting Interoperability Programs. Follow link for: *more information*
2020	The Office of the National Coordinator for Health Information Technology - Interoperability	Information regarding interoperability Follow link for: *more information*
2019	Iowa DHS Provider Enrollment Health Information Technology (HIT) Survey Results	This report presents the results of the HIT survey which providers must complete as part of the Iowa Medicaid provider enrollment and re-enrollment process. The report aims to evaluate Medicaid's HIT landscape including participation in the Centers for Medicare & Medicaid Services' (CMS) Promoting Interoperability Program, use of EHRs, use of certified EHRs (CEHRT), interest of reporting Clinical Quality Measures (CQMs) to the IME, and use of Health Information Exchange (HIE).

[24] Iowa's SMHP https://dhs.iowa.gov/ime/providers/tools-trainings-and-services/medicaid-initiatives/EHRincentives Accessed 12/04/2021.

Year	Name of Report or Other Information	Description (and hyperlinks)
		Follow link for: *more information* Author: Iowa Medicaid Enterprise
2017	Iowa Department of Public Health The Current State of Health Information Technology in Iowa	IDPH put together a summary of HIT in use in Iowa. Follow link for: *more information* Author: IDPH
2017	IHIN Qualitative Data Report Environmental Scan Iowa Health Information Exchange Ecosystem	The purpose was to understand current information exchange capabilities needed to enable care coordination for hospitals, clinics, behavioral health, long term care, home care and federally qualified health care centers. Data was collected through a convenience sample of 50 key informants, from 32 unique organizations, in 16 cities across Iowa. Author: Advocate Consulting LLC
2017	Health Information Technology Environmental Scan of Select Iowa Health Care Providers	Sum-IT Health Analytics to conduct a readiness assessment Survey to better understand the current and planned health information technology (HIT) capabilities of five (5) Iowa provider types. The Survey included questions about how clinical information for patients/residents is being collected, managed, analyzed, and exchanged today (2017) and how providers plan to do these activities in the future (in the next two years). Data collection sought to gain insight into progress providers have made toward securely exchanging electronic patient information with the entire care team. Goals for future data exchange were also explored along with barriers and challenges faced by the providers. Follow link for: *more information* Author: Sum-IT Health Analytics
2016	ONC Health IT Data Summaries	*https://www.healthit.gov/data/apps/health-it-data-summaries*
2015	Iowa Health Information Technology and Meaningful Use Landscape in 2015	The University of Iowa research team was tasked with conducting an environmental scan of the health IT and Meaningful Use landscape in Iowa to provide evidence to support the state's health IT planning and technical assistance. The assessment survey targeted three types of respondents that had attested to CMS Meaningful Use programs and had received at least one incentive payment in and/or prior to 2015: eligible hospitals (hospital version), eligible professionals who are not dentists (practice version), and eligible professionals who are dentists (dental practice version).

Year	Name of Report or Other Information	Description (and hyperlinks)
		Follow link for: *more information* Author: University of Iowa Public Policy Center
2011	Iowa e-Health Baseline Assessment of Health Information Technology Use by Providers in Iowa	The effort included five health provider settings, home health, long-term care, pharmacies, laboratories, and radiology centers and assessments for each setting. The assessments gathered information about a range of HIT topics including, provider HIT capabilities and preparedness to participate in a statewide HIE; preferences for types of high-value clinical data exchange or HIE services; and benefits and barriers to HIT adoption. Follow link for *more information* Author: University of Iowa Public Policy Center
2010	Health Information Technology use in Iowa Pharmacies: A Study for Iowa e-Health	An assessment to evaluate the use of HIT in Iowa laboratories. Follow link for: *more information*
2010	Health Information Technology use in Iowa Medical Laboratories: A Study for Iowa e-Health	An assessment to evaluate the use of HIT in Iowa pharmacies. Follow link for: *more information*

A high-level summarization of the historical IME HIT Survey results is presented below. Table 2 depicts the types of questions posed for each survey, as well as the key findings.

Table 2: Summary of Historical Scan Findings

Themes	2009 Scan	2015 Scan	2017 Scan	2017 Qualitative	2017 ONC Health IT Dashboard	2019 Provider Enrollment
1. Electronic Health Record (EHR) Use Hospitals Eligible Professionals (EPs) Other (non-EPs)	**Hospitals/Provider Practices using** EHRs in all areas: 11%/46%	**EHR Adoption since 2010:** Hospital/Eligible Practices/Dentists: 52%/80%/78%	**Non-EP EHR use:** Home Health Agencies (HHAs) - 89.5% Long Term Post-Acute Care (LTPAC)-90.0% (8.0% planned) Hospice – 77.3% (22.7% planned) Rural Health Centers (RHC) – 95.7% Assisted Living (AL) – 68.3% (23.8% planned) Federal Qualified Health Centers (FQHCs) – 100%		**Hospitals/Physicians using Certified EHRs:** 97%/84%	**NPIs (N=50,000), survey size:1,388** Use an EHR: 81% Do not use an EHR & do not intend to purchase: 73% of non-users Currently have a certified EHR: 54% Other Non-Acute Care EHR use: HHA: 33% Long-term care (LTC):25%
2. Meaningful Use (MU) Hospitals Eligible Professionals	**EPs/Hospitals eligible for MU payments in 2011:** 50%/100%	**Hospitals Attesting to MU Stage 1/2 2011-2015:** 92%/45% **Eligible Practices Attesting to MU Stage 1/2 2011-2015:** 97%/25% **Dental Practices Attesting to MU Stage 1/2 2011-2015:** 70%/0%		**Key Informants (KIs) of all categories attested to:** MU Stage 2: 48% MU Stage 3: 18%	**Hospitals/Physicians that have Demonstrated MU:** 99%/78%	**Participation in Promoting Interoperability Program/MU**: 60%

3. Data exchange for use cases: Labs Immunization registry eRX (electronic prescribing) Public Health reporting Clinical Care Summaries Discharge Summaries	**Hospitals Data sharing Within/Outside of their System:** Lab: 32%/11% Discharge Summaries: 28%/5% Clinical Care Summaries: 21%/NA **Pharmacies Accepting eRX:** 63% **Labs able to Deliver Structured Lab Results**: 50% **Labs able to Accept Electronic Lab Orders:** 39% **Immunization Registry** used by: 1000 organizations **Iowa Disease Surveillance System** used by: 210 organizations	**Hospitals Sharing Data with Outside Providers:** Public Health: 79% Labs: 42% Pharmacies: 30% **Eligible Practices sharing data with:** Pharmacies: 31% Clinics: 17% Labs: 17% **Dental Practices sharing data with:** Immunization: 12% Lab: 12% Pharmacies: 11% Public Health Registries: 22%		**KIs of all categories report:** eRX use: 97% Data Received electronically from external providers: Medical records: 28% Lab results: 20% Diagnostic Imaging: 14% Consults: 14%	**Hospitals that Reported MU:** 100% **Hospitals Reporting MU Public Health Measures (2015): Immunizations/Lab Results/Syndromic Surveillance:** 99%/86%/6% **Hospitals that can Send/Receive/Integrate data from outside providers:** 87%/76%/48% **Physicians that can Send/Receive/Integrate data from outside providers:** 40%/40%/24% **Health Care professionals demonstrating MU:** 78% of physicians, 22% of NPs and 2% of PAs.	

4. eCQM (electronic clinical quality measures)						**Do NOT want to submit eCQMs to the IME:** 80%
5. Patient Health Risk Assessments (HRAs)		**Practices/Dental Using Medicaid HRAs:** 16% /33%				
6. ADT (Admission, Discharge, Transfer) Information Sharing		**Hospital ADT Data Shared with:** Primary Care: 46% IHIN: 37% Payer: 29% EPs that can receive ADT: 15% Dental Practices that receive ADT: 0%		**KIs who report outside ADT information not available**: 24%		
7. Health Information Exchange (HIE)		**Hospitals using IHIN:** 60% **Eligible Practices using IHIN:** 9% **Dental Practices using IHIN**: 22%	**Non-EPs IHIN use:** HHA – 26% LTPAC – 22% Hospice – 25% RHCs – 68% AL – 6% FQHCs – 78% participate in HRSA Health Center Controlled Network (HCCN) and contract with a single Iowa organization (IA PCA) for infrastructure support			**Connected with IHIN:** 5% **NOT connected with any HIE**: 90% **Very or Somewhat Interested in Participating in statewide HIE:** HHA: 77% LTC: 55% Pharmacies: 55% Laboratories: 63% Radiology: 88%

8. Patient (Pt) Personal Health Records/Communication Capabilities/Portals		**Practices w Pt Portals:** 23%	**Facilities w Pt Portals** HHA: 11% LTPAC: 17% Hospice: 5% RHC: 90% AL: 95%	**KIs of all categories report patient portal use:** 91%	**Hospitals/Physicians that have provided electronic capabilities to their patients:** 42%/71%	

B. Summary – Knowledge/Information Gaps

After the team reviewed the historical information available, information gaps were identified where the 2020/20221 environmental scan could focus attention.

1. Data Exchange

Data exchange, especially between hospitals in different organizations was hovering around 10% in 2009. This increased to over 75% by 2017, though the ability to integrate into the receiving hospitals EHR was closer to 50%.

As early as 2015 more than 80% of hospitals were able to report public health measures electronically. In order to ascertain the current state of hospitals related to public health reporting and actual use of exchanged data, this should be assessed in the current environmental scan.

Provider data exchange and incorporation rates were about half of that of hospitals (80% vs. 40%) and data incorporation rates were also low (50% for hospitals vs 24% for providers).

Capabilities and frequency of data exchange by other organizations such as: HHAs, LTPAC, Hospice, RHC, Assisted Living, FQHCs was documented in the 2017 environmental scan, however current performance rates are unknown.

Historic environmental Scans included questions related to several common themes, including:

- Electronic Health Record (EHR) Use
- Meaningful Use
- Data exchange for use cases (Public Health Reporting, Clinical Care Summaries, Discharge Summaries, Labs, Immunization Registry, e-Prescribing)
- eCQM
- Patient Health Risk Assessments
- ADT Information Sharing
- Health Information Exchange
- Patient Portals, Personal Health Records, and Communication Capabilities

2. Knowledge Gaps

- Meaningful Use Stage 3 and Interoperability achievement
- Meaningful Use benefits achieved
- Current EHR adoption and data exchange from the other types of provider organizations (HHAs, LTPAC, Hospice, RHC, Assisted Living, FQHCs)
- Current data exchange/incorporation rates by hospitals and EPs.
- Current reporting rates to Immunization and other registries
- Electronic social determinants of health (SDOH) exchange and use in care
- Clinical use of patient data for care coordination and transitions of care that has been exchanged electronically
- Current Patient Portal Availability and Use for patient data input as well as review SMHP Part A questions related to HIT/HIE Stakeholder Involvement

Chapter 3: Current Environmental Scans and Additional Data

This chapter presents information related to the current status (2020-2021) of HIT in Iowa. It includes information gathered through a provider survey and from the hospital association survey. It also integrates information from other professional associations regarding practitioner HIT practices, and summarizes conversations from key informants.

A. Iowa Medicaid Enterprise Provider Practice and Clinic Health Information Technology Survey

This section of Chapter 3 contains a copy of the results from the full Provider Practice report, which is available in its entirety on the IME website.[25]

The current study is the final environmental scan conducted to close out the HITECH Medicaid Promoting Interoperability Program. IME contracted with Sum-IT Health Analytics to conduct a survey to better understand the current HIT capabilities and future plans of Iowa provider practice and clinic organizations as they relate to exchanging information with providers outside their organization and their capabilities of interoperability. The survey included questions about provider practice and clinic organizations' electronic health record implementation and use, as well as how they send, receive, find, and integrate information into their EHRs.

1. Key Objectives

This assessment was conducted to determine interoperability capabilities, collection and use of information from other medical and community-based providers, and exchange of healthcare data.

2. Key Findings

The Provider Practice and Clinic Health Information Technology 2021 survey revealed several key points:

- A total of 98% of practices use certified EHRs. This indicates that overall, EHR adoption and use for those eligible professionals participating in the Medicaid Promoting Interoperability Program throughout Iowa clinics and practices have been successful over the past ten years.
- It was common for practices to use more than one method to send or receive information from/to outside their practices. The most commonly used method to send/receive information is direct secure messaging, which is considered basic interoperability to exchange information that does not require that disparate EHR systems be able to interpret the exchanged data.[26]

[25] Visit the IME Health Information Technology (HIT) and Promoting Interoperability (PI) Program website: https://dhs.iowa.gov/ime/providers/tools-trainings-and-services/medicaid-initiatives/EHRincentives Accessed 12/04/2021.
[26] https://ehrintelligence.com/features/how-health-data-standards-support-healthcare-interoperability Accessed 12/10/2021.

- More practices use EHR vendor-based HIE tools to send, receive, and query for patient information than use IHIN/CyncHealth or other HIE/Health information organizations (HIOs).
- One-fourth of practices were not able to query using any of the interoperable methods mentioned in the survey.
- Most practices can integrate data from outside organizations, although the types of data vary by practice.
- Most practices have engaged in data analytics with their EHR data to improve quality and/or efficiency of care.

This study included only practices that received incentives from the Medicaid Promoting Interoperability Program, and although they have implemented certified EHRs, many of these practices report only limited health data sharing with outside organizations.

Several important themes emerged from this study that may have future policy implications:

- Practices able to send, receive, query, and integrate information still face barriers to exchanging health data with providers who are not operating on an interoperable EHR.
- For an HIE/HIO to be useful and financially worthwhile for investment, it must be interstate.

3. Methods

a. Population

The study population consisted of the provider practices and clinics in Iowa for which one or more providers in their organization received at least one incentive through the Iowa Medicaid Promoting Interoperability Program. The IME maintains a database of all providers in the state who participated in the program at some time during the 10-year period of the program from its inception in 2011 through 2021. Each organization represents one or more provider practices or clinics. The Practice is the unit of measure for the study, since the HIT capabilities are presumably available to all providers within the practice site.

The study was designed to have a separate survey completed by each of the included organizations for each unique set of EHR/software/HIT capabilities within the organization. Dental practices were excluded from the sample. After grouping providers into the practices that received the funding, there were 87 provider organizations, five of which had different HIT capabilities at two or more of their practice sites. This resulted in a population of 92 points of contact for the study. IME identified an HIT contact person and email address for each organization which contained a practice (or group of similar practices in terms of HIT) and verified the correct person to receive the survey within each practice though a personalized telephone conversation and emails.

b. Survey Instrument

Sum-IT Health Analytics, in collaboration with the IME, developed a survey instrument with questions in five thematic categories:

- Respondent and Practice/Organization Information
- Provider EHR Capabilities and Certifications
- Interoperability of Health Information Technology
- Use of Patient Information to Impact Care

- Future Plans

The survey questions were developed via an iterative, collaborative effort with contributions made by Sum-IT and IME team members. The final Survey instrument contained 13 multiple-part questions about HIT. Practice demographics were collected separately via phone and email contacts. A paper (Microsoft Word®) prototype was developed by Sum-IT and then programmed into an online data collection tool (SurveyMonkey®). Sum-IT tested the tool and the resulting test data file before dissemination.

c. Survey Outreach and Publicity

A key feature of our study protocol that is largely responsible for the high response rate obtained was the personalized and frequent outreach to organizations in the study sample. The HIT Advisor for the IME Promoting Interoperability Program was familiar to these Iowa practices prior to the onset of this study. Telephone calls and emails were used to identify the organization representative who would be most knowledgeable about the study topics.

The HIT Advisor used a standardized script for communications to introduce the survey, explain the objectives and types of questions, and to request a contact person for the study. The HIT Advisor asked, “Does your EHR have the same functionality across your clinics?” If the answer was ‘No’, then additional surveys were distributed for the organization to complete.

d. Data Collection

The HIT Advisor collected data from each organization that had received at least one provider incentive payment from the Promoting Interoperability Program. The data that were collected included:

- Contact to send the survey to and their contact information (name and email address)
- Practice Name(s) and National Provider Identifier (s; NPIs)
- Practice(s) ownership
- Number of practices/clinics in the organization
- Number of providers
- Different EHRs/functionalities

e. Survey Dissemination

The survey link was sent via email from SurveyMonkey to the point-of-contact (POC) at each provider organization. The email message contained a brief email letter from the Interim Iowa Medicaid Director containing a link to the online survey with a request to complete the survey within two weeks. After the two weeks elapsed, a reminder email was sent to non-responding POCs, with a second request to complete the survey. The survey took, on average, 9 minutes to complete.

Sum-IT communicated frequently with the HIT Advisor while the survey was in the field so additional outreach could be performed to encourage completion of the survey. There were a small number of emails that “bounced-back”; as this occurred, additional outreach was performed and either the designated POC located the survey link or a new POC was identified.

The HIT Advisor contacted those who had not responded in the final week the survey was in the field with a final reminder to complete the survey.

4. Data Analysis

At the end of the data collection period, final survey data were downloaded from SurveyMonkey and processed using Microsoft Excel® software. Data analysis proceeded through several iterative cycles as data were cleaned, merged and re-coded in preparation for analysis.

Sum-IT obtained practice and provider size information from each POC. The average practice size was calculated as the number of providers divided by the number of practices (# providers / # practices). This information was used to weight the survey responses to the corresponding number of practices and providers. The practice is the primary unit of reporting for the study. The processed analytic files were exported into Microsoft Excel to enable dynamic iterative analysis including the use of graphs, charts and pivot tables.

Frequency tables were generated for all survey questions. Some of the questions allowed the responders to select multiple options from a list of possible responses. The analyses include the patterns of multiple responses, such as a count of responses selected (none selected, one, two, three or all). Since respondents were not forced to answer each question, the number of responses may vary slightly by question. Variable values of free text survey questions were recoded and classified into thematic categories for reporting consistency.

After examining frequencies, bivariate analyses were performed to identify whether responses varied by practice size. Finally, responses to several survey questions were combined to examine the key themes in the survey: EHR Adoption, Interoperability, and Social Determinants of Health.

5. Results

The survey findings are presented in thematic categories below.

a. Respondent and Practice/Organization Information

From the 92 requested responses, (reflecting the variations in capabilities within an organization that were contacted), 78 responses were submitted to SurveyMonkey, resulting in a response rate of 85%. These respondent organizations provided information representing 873 practices/clinics (referred to as ***practices*** throughout this report), with approximately 8,153 providers. The distribution of responses by practice size is depicted below (Table 3).

Table 3. Respondent practice size.

Respondents			
Average Practice Size	**Responses**	**Practices**	**Providers**
< 10 providers per practice	63	436	2,119
>=10 providers per practice	15	437	6,034
Total	**78**	**873**	**8,153**

In instances where an organization had more than one EHR or HIT system or other variations in the HIT capabilities, the same individual may have completed more than one survey.

The 14 POCs that did not respond to the survey represented 37 practices (6 were >= 10 providers per practice) and approximately 233 providers.

Hereafter, the responses are presented in terms of the number of practices who responded to the question with a given answer (N=873).

b. Practice EHR Capabilities and Certifications

Respondents were asked about the use of technology at their organization. The first question was whether the practice(s) used an EHR to capture clinical information about their patients. Of those saying "Yes" a question followed regarding whether the EHR was 2015 certified (Table 4).

Table 4. EHR use and certification.

EHR Use	# Practices	%
a. Yes	**862**	**99%**
2015 certified EHR (Yes)	857	98%
Not certified	2	0%
Unsure	3	0%
b. No	**11**	**1%**
Total	**873**	**100%**

- Ninety-eight percent of practices use 2015 certified EHRs.

Respondents were asked how their organization captures or records information they collect related to patient's needs for community-based services or social determinants of health (SDOH). To ascertain whether capabilities for capture of SDOH varied by the size of the practice, these responses are displayed by average practice size (Table 5).

Table 5. Capture and record information for community-based service needs by practice size.

Average # providers	< 10 per practice		>=10 per practice		Total	
Capture SDOH needs	**Practices**	**%**	**Practices**	**%**	**Practices**	**%**
We do not perform these assessments or collect this information	114	26%	15	3%	129	15%
We do not enter this information in the EHR (e.g., use paper forms)	42	10%	0	0%	42	5%
We capture it as unstructured data (e.g., free text or scanned documents)	114	26%	6	1%	120	14%
We integrate it as structured data (e.g., as fields in the EHR)	166	38%	416	95%	582	67%
Total	**436**	**100%**	**437**	**100%**	**873**	**100%**

- 85% of practices capture this information,
- 67% (n=582) integrate the information into the EHR as structured data,

- The 582 practices:
  - Represent approximately 6,815 providers (84% of the 8,153 total) (data not shown).
  - Demonstrate capabilities that vary by practice size
    - 166 practices (38%) with an average practice size of <10 providers integrate SDOH data in their EHR as structured data
    - 95% of practices with >=10 providers integrate SDOH data in their EHR as structured data

The online survey automatically skipped respondents out of the next question if they did not collect data on SDOH assessments (129 practices). Respondents who performed SDOH assessments were asked how their organization sends patient referrals, intake assessments or requests for services to community-based organizations outside of their practice. They were invited to check all responses that were applicable (Table 6).

Table 6. Send patient referrals to community-based organizations.

Send SDOH referrals	# Practices	%
Paper, fax or telephone	715	82%
Direct Secure Messaging	397	46%
EHR-based message	442	51%
Other	19	2%

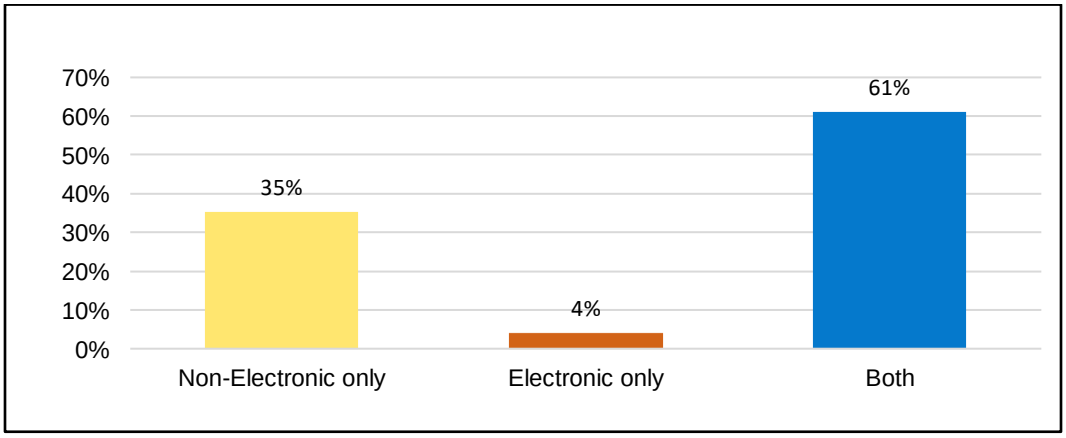
The “Other” responses included:

- encrypted email (8 practices)
- electronic fax (7 practices)
- other organization’s provider portal/ application programming interface (API;1 practice)

An additional 3 “Other” responses were either not related to use of technology to exchange information or were already specified in the responses.

It was common for practices to use a combination of methods to send patient referrals. We categorized the responses into either electronic or non-electronic methods for sending SDOH referrals. Results representing 744 practices are depicted below (Figure 1).

Figure 1. Combinations of methods to send SDOH referrals.



This measure is also examined by practice size (Table 7).

Table 7. Send SDOH referrals, by practice size.

Average # providers	< 10 per practice		>=10 per practice		Total	
Send SDOH referrals	**Practices**	**%**	**Practices**	**%**	**Practices**	**%**
Non-Electronic	221	69%	40	9%	261	35%
Electronic	27	8%	3	1%	30	4%
Both	74	23%	379	90%	453	61%
Total	**322**	**100%**	**422**	**100%**	**744**	**100%**

- Very few practices, regardless of size, send SDOH referrals electronically (only 4%)
- Only 23% of practices with <10 providers use both paper and electronic, while 90% of practices with >=10 providers use both non-electronic and electronic methods to send referrals.

c. Send, Receive, Query, and Integrate

ONC defines interoperability as the architecture or standards that make it possible for diverse EHR systems to work compatibly in a true electronic information exchange. ONC developed a measure that comprises the four domains of interoperability: send, receive, find (or query), and integrate (or incorporate) health information into an EHR without manual effort. The survey contained questions on these four areas to assess provider practices' interoperability capabilities.

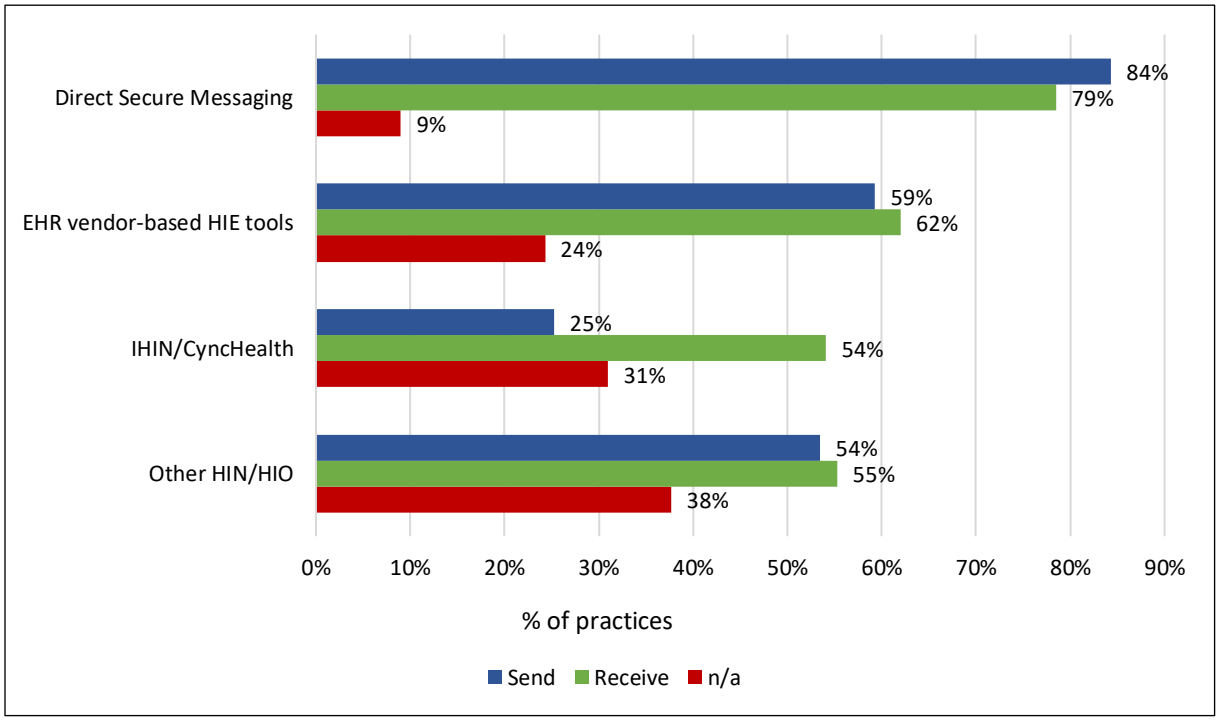
First, respondents were asked how their organization electronically sends and receives patient health information with providers outside of their organization (Table 8). Selection of more than one method/option was possible.

Table 8. Send and receive information outside the organization.

Send and Receive	n/a (don't use this technology)		Send		Receive	
Exchange Method	**# Practices**	**%**	**# Practices**	**%**	**# Practices**	**%**
Direct Secure Messaging	79	9%	736	84%	685	79%
EHR vendor-based HIE tools (e.g., Epic Care Everywhere, CommonWell, etc.)	212	24%	518	59%	541	62%
Iowa Health Information Network (IHIN) – now doing business as CyncHealth Iowa	271	31%	221	25%	472	54%
Other health information network (HIN), health information organization (HIO), or health information exchange (HIE)	329	38%	467	54%	483	55%

The differences in the frequency with which respondents use different electronic options is visually depicted in Figure 2.

Figure 2. Methods used to send and receive information outside the organization.



- Direct Secure Messaging was the most common tool practices use to electronically send (84% of practices) and receive (79% of practices) information
- Practices frequently reported using EHR vendor-based health information exchange tools (59% of practices send and 62% receive)
- Other HIN/HIOs were more likely to be used than IHIN/CyncHealth to send information (54% compared to 25%, respectively), however both types of HIEs were commonly used to receive information by more than 50% of practices
- Practices were twice as likely to receive than to send information through IHIN/CyncHealth

Respondents representing 188 practices (22% of the total; n=873) responded that they do not use any of the three EHR-based response options; that is, although they do have a certified EHR, they selected n/a for EHR-vendor-based HIE tools, CyncHealth or any other HIN/HIO. Comparison to the earlier survey question regarding EHR use and certification revealed that most of these practices (93% of the 188) had 2015 Certified EHRs (Table 9). Two practices (1%) use EHRs that are not 2015 certified.

Table 9. EHR certification among practices not using the capability to send and receive.

EHR Certification for Practices Not Sending/Receiving	# Practices	%
a. Yes	**177**	**94%**
2015 certified EHR (Yes)	175	93%
Not certified	2	1%
b. No	**11**	**6%**
Total	**188**	**100%**

Next, respondents were asked how their practices electronically search, query, or find a patient's health information from sources outside of their organization (Table 10). More than one method/option was possible. In addition, the survey instrument allowed respondents to select "Other HIN/HIO/HIE", and to insert a text response to describe the query mechanism.

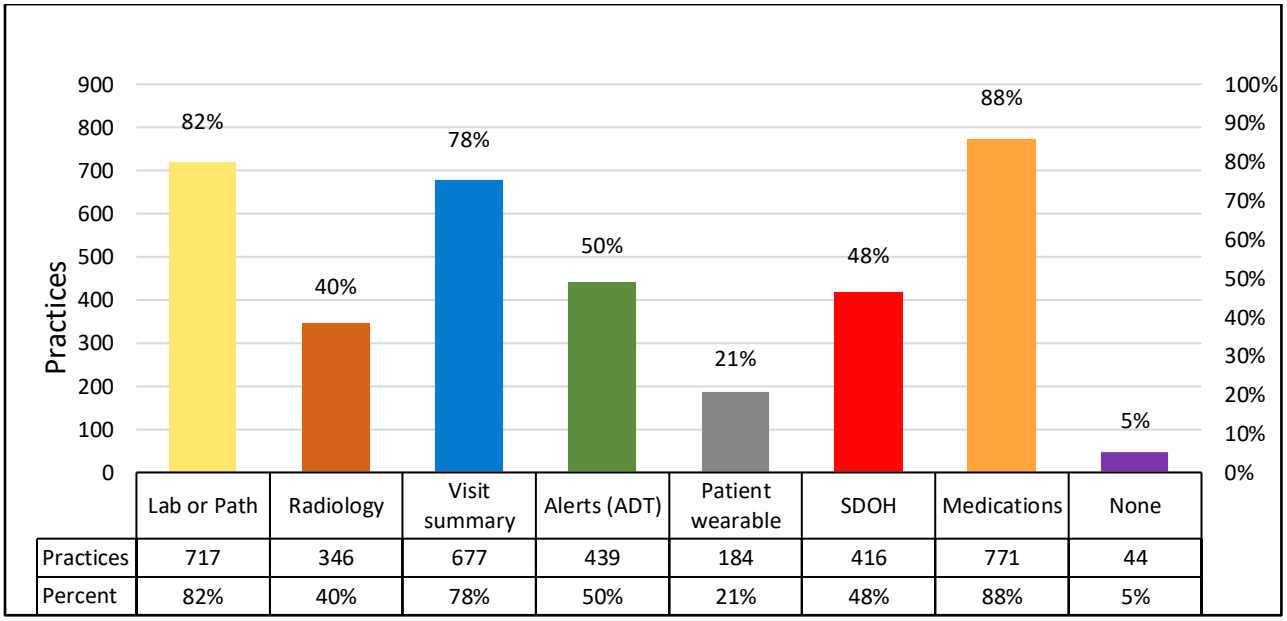
Table 10. Query for information outside the organization.

Query	# Practices	%
EHR vendor-based HIE tools	605	69%
Access to other org EHR	273	31%
IHIN/CyncHealth	174	20%
Other HIN/HIO	22	3%
Third party portal	317	36%
VA/DOD system	64	7%
IDPH reporting	31	4%
N/A	191	22%

- The other HIN/HIO responses (22 practices) included both other state (South Dakota Health Link) and national HIEs (Carequality and eHealth Exchange)
- The third-party portals mentioned included Direct Trust (300 practices) and PatientPing (17 practices)
- Reporting tools for Iowa Department of Public Health (IDPH) were mentioned in these responses, including the Immunization Registry (IRIS) and the Disease Surveillance System (IDSS)
- SureScripts (for e-prescribing) was also mentioned as a way the organization queries for patient information

Finally, respondents were asked whether the organization was able to integrate various types of patient data they receive from outside organizations as structured data into their EHR (Figure 3).

Figure 3. Types of information integrated from outside organizations.



	Lab or Path	Radiology	Visit summary	Alerts (ADT)	Patient wearable	SDOH	Medications	None
Practices	717	346	677	439	184	416	771	44
Percent	82%	40%	78%	50%	21%	48%	88%	5%

- Integration of one or more of these types of data is performed by 92% of practices
- 5% reported integration of none of these data types
- 3% did not check any of the types of data (i.e., skipped the question)
- Many practices can integrate lab or pathology, visit summary, and medications (629, or 76%)
- Only 40% of practices can integrate information from radiology reports or picture archiving and communication system (PACS) images.

d. Use of Patient Information to Impact Care

Respondents were asked how organizations analyze and use patient information from the EHR (and possibly other sources) to improve quality and/or efficiency of care. Potential responses included:[27]

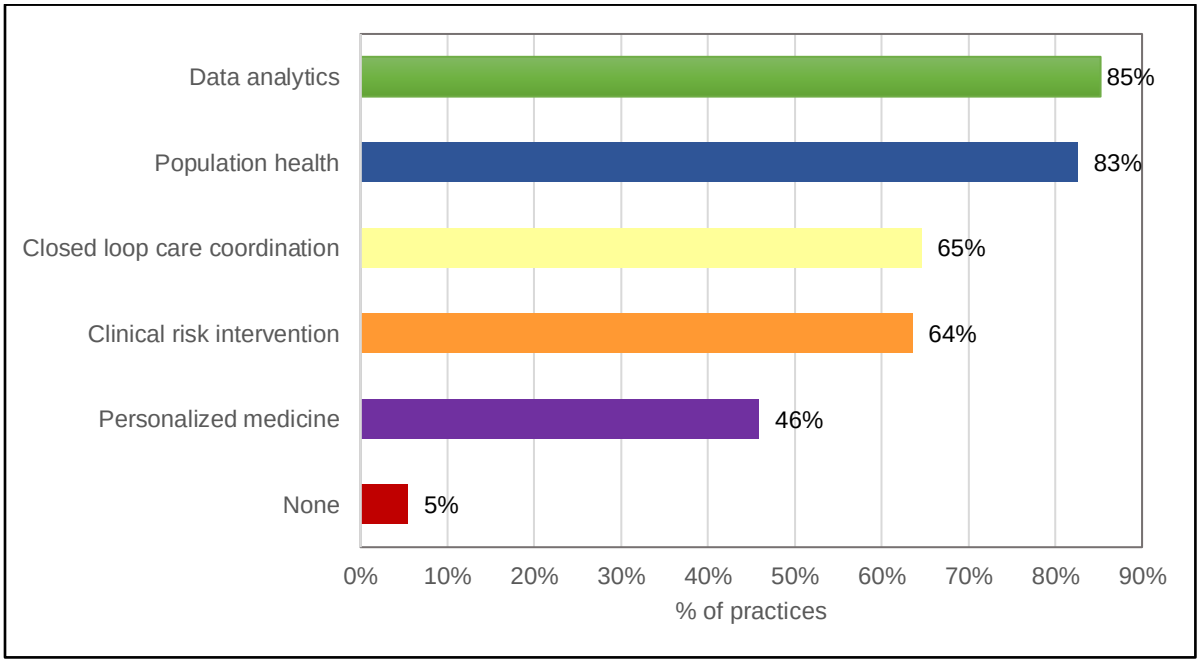
a. Population Health Management – Coordinated care across care settings using integrated personalized medicine
b. Data Analytics – Track and report variations in care and operational efficiency, enhance quality of care, population health, and understanding the economics of care.
c. Clinical Risk Intervention & Predictive Analytics – Expands the focus on advanced data content and clinical support
d. Personalized Medicine & Prescriptive Analytics – Leverages the use of advanced data sets, such as genomic and biometrics data to support uniquely tailored and specific healthcare treatments
e. Closed Loop Care Coordination – The patient record tracks closed loop care delivery and multiple care pathways for each patient along with patient compliance tracking

[27] Adapted from HIMSS Adoption Model for Analytics Maturity. https://www.himss.org/what-we-do-solutions/digital-health-transformation/maturity-models/adoption-model-analytics-maturity-amam

f. None of the above.

Respondents were asked to choose all categories that apply (Figure 4).

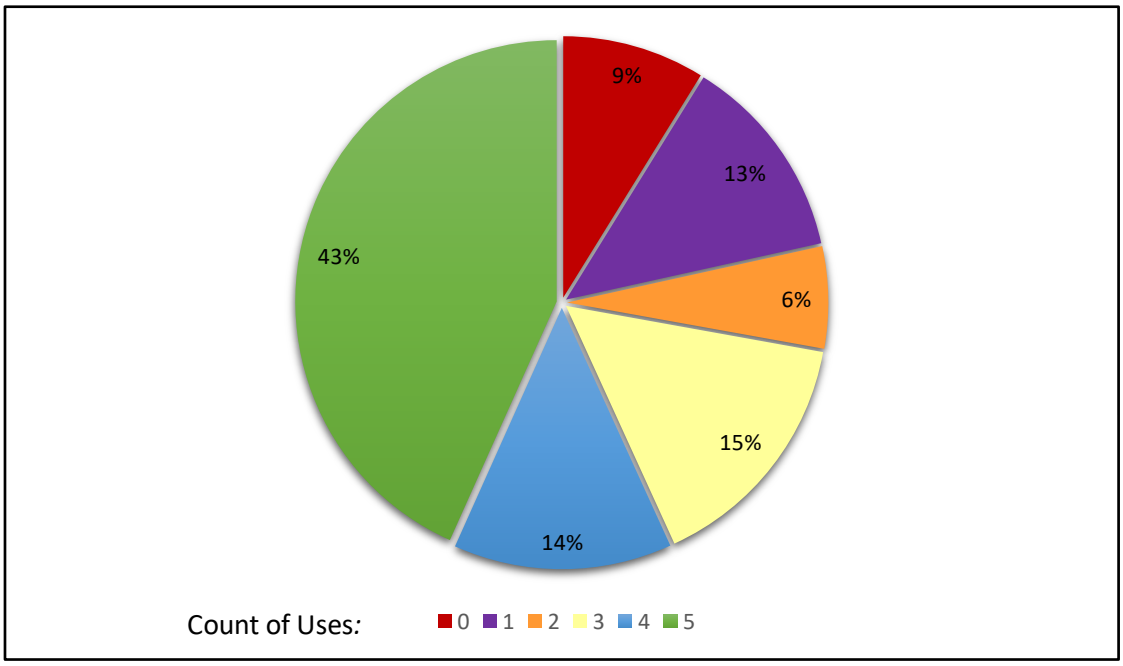
Figure 4. Use EHR to impact care.



- 85% of practices reported they perform data analytics with their EHR data
- 83% use EHR for population health management
- 65% use EHR data for closed loop care coordination
- 46% of practices use information from their EHR to perform personalized medicine
- 44% of practices do both – closed loop care coordination and personalized medicine (data not shown)
- Practice size has an impact on this capability:
    - Ninety-five percent of practices with 10 or more providers were able to do this
    - 34% of practices with less than 10 providers were able to do this (data not shown)

The majority of respondents reported their organization uses information from their EHR to perform more than one of these activities. The distribution is depicted in Figure 5.

Figure 5. Count of capabilities for using EHR information to impact care.



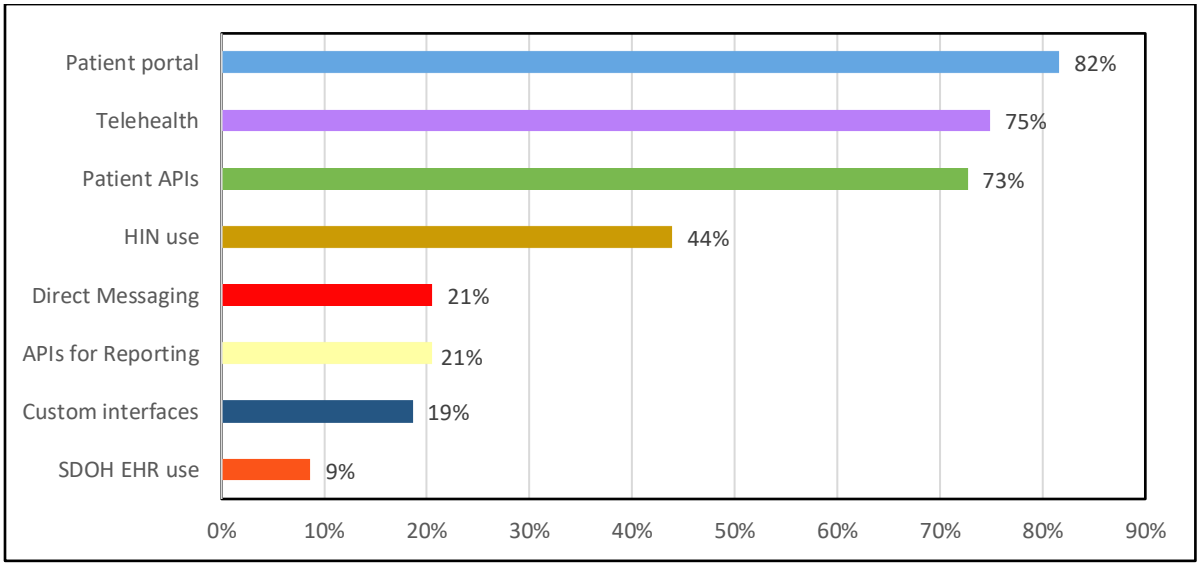
- 9% of practices did not have any of the capabilities listed in Figure 4
- 72% had three or more of the capabilities.

e. Future Priorities

In the last section of the Survey, respondents were asked about the organizations' future priorities for health information sharing – such as how they want to connect, share data, and with whom. They also had the opportunity to tell us something important about their organizations' HIT that was not already addressed in the survey.

Some practices have already completed their implementation of the types of technology listed in the survey. This proportion of practices having completed their implementation is depicted in the bar chart below (Figure 6).

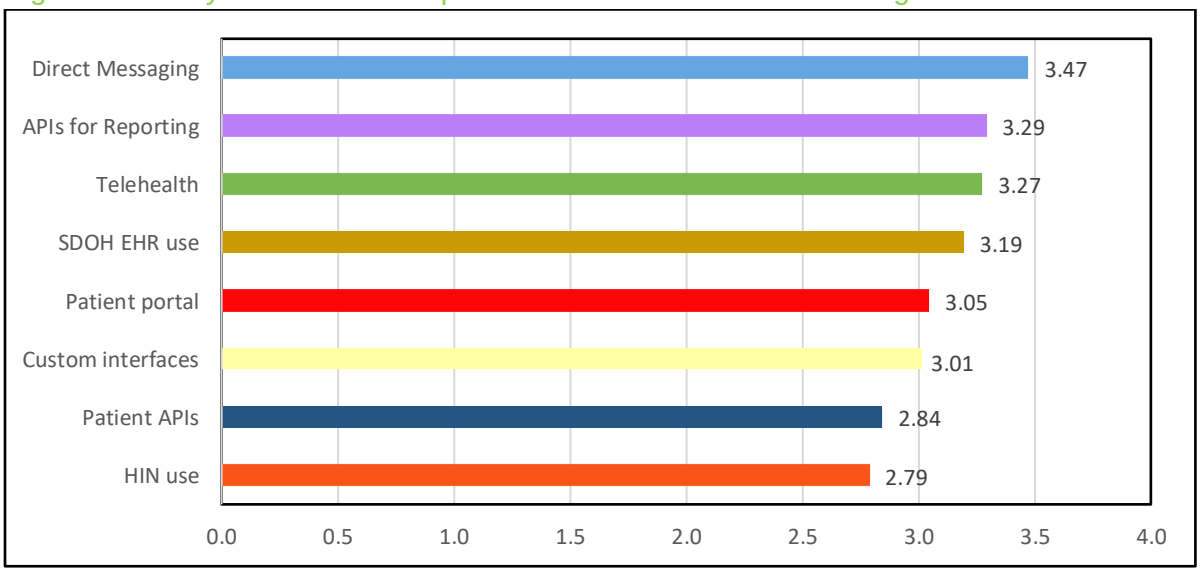
Figure 6. Completion of HIT implementation for information sharing.



- The types of technology that were most frequently reported as already completed were:
  - patient portals (82%)
  - telehealth (75%)
  - patient APIs (73%)
- This survey did not examine the depth of functionality included in the implemented technologies

Within the same question, organizations that did not already complete implementation were asked to rate how much of a priority it was for their organization to implement, with a value of 1= not a priority and 4= high priority (Figure 7). Data were aggregated to create an average priority score for each item.

Figure 7. Priority for future HIT implementation for information sharing.

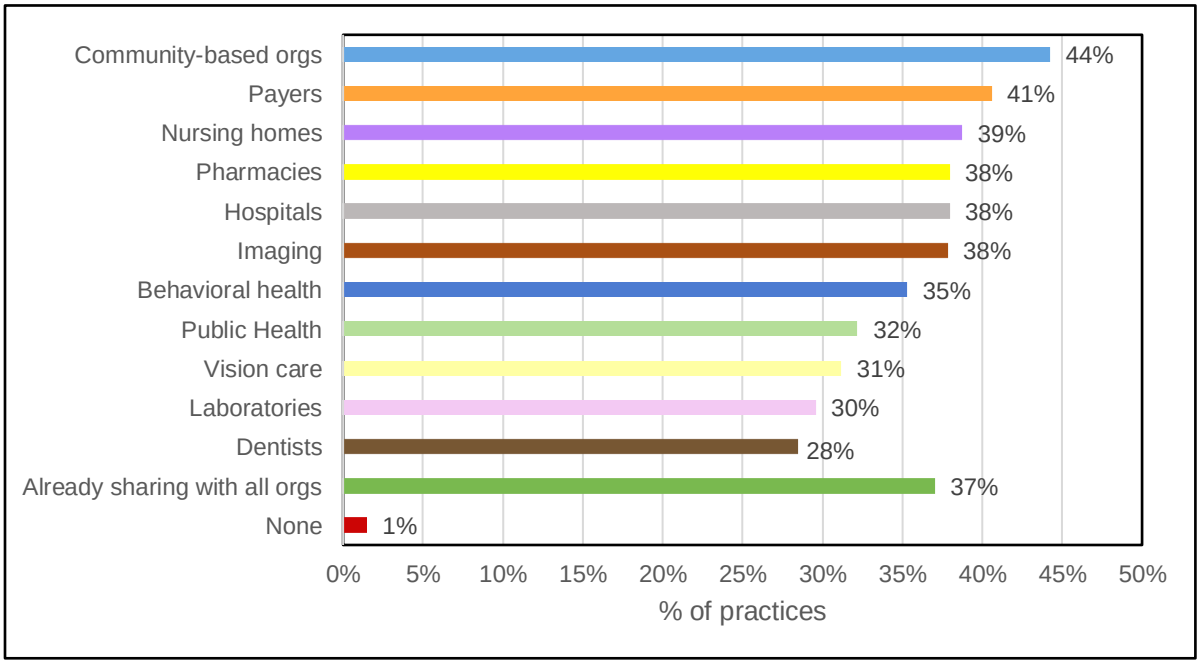


The three types of technology rated as the highest priority to implement in the future are:

- Direct Messaging (average priority score is 3.47)
- APIs for reporting quality or performance data (3.29)
- Telehealth (3.27)

Next, respondents were asked about the organizations' future priorities for interoperable health information sharing with the following types of organizations, in particular, who they would like to begin sending or receiving patient data with (Figure 8).

Figure 8. Priority organizations for future data sharing.



The types of entities most frequently identified as a priority for future data sharing were:

- community-based organizations (44% of practices)
- payers (41% of practices)
- 1% of practices reported that they are not interested in interoperable information sharing with any of these provider types
- 37% of practices (n=323) reported they already send and receive data interoperably with all types of entities listed in the response categories.
    - Ninety-three percent of these (323) practices are large, with an average of 10 or more providers per practice (data not shown).

f. Other Considerations

For the final question of the survey, respondents were invited to share anything else they considered important to their organization's ability to send and receive interoperable data or analyze information to improve care. Twenty-nine responses were gathered via free-form text. The common themes identified, and the number of practices for which the response applied are depicted in Table 11.

Table 11. Open-ended response themes.

Open-ended response theme	# Practices
Issues related to lack of standards and technical compatibility	81
Lack of IT expertise and funding	34
Many of the respondents were specialty or other practices who claimed less need or interest in data sharing and were not required to do so by the CMS regulations	30
Lack of Direct Messaging capabilities for many practices	26
Lack of a central registry for providers/practices to find addresses to transmit or request information via Direct Secure Messaging	13
A few of the practices indicated that they had minimal capabilities with their current system and are moving to a different EHR system	12
Security/privacy concerns related to HIV and mental health inhibited data sharing	2
Need access to interstate, not just intrastate HIE – in order to be worth investment	2

Themes for other responses of interest, and illustrative quotes include:

- Financial issues with Medicaid patients — "Medicaid heavy payer mix means less money to employ data analysts or to employ other tools within the EHR as additional features cost more money…"
- Privacy concerns — "Confidentiality requirements slows down data transfer due to the need to receive patient approval to share data."
- Need interstate HIE — **"**Before we invest in HIE, we have to be able to access information via interstate, not just intrastate." and "…need an HIE that can communicate with not only Iowa."
- Technical issues with IHIN— "It has been extremely difficult getting our EHR system and IHIN on the same page."

g. Overall – Interoperability Capabilities

Information from several survey questions were used to summarize practice capabilities for interoperability and whether they were able to send, receive, query and integrate data from outside their organization.

Interoperably Send

A summary variable that counts the number of interoperable methods used by practices to send patient information was created; note this is a refinement of Table 8. The responses that were considered interoperable were: 1) EHR vendor-based HIE tools, 2) IHIN/CyncHealth, and 3) Other HIN/HIO. The results are depicted as none, one, or more than one of these interoperable methods - and displayed by practice size (Table 12).

Table 12. Count of methods for interoperable send, by practice size.

Average # providers	<10 per Practice		>=10 per Practice		Total	
Send Methods	**Practices**	**%**	**Practices**	**%**	**Practices**	**%**
None	249	57%	19	4%	268	31%
One	115	26%	10	2%	125	14%
>One	72	17%	408	93%	480	55%
Total	**436**	**100%**	**437**	**100%**	**873**	**100%**

- 69% of practices reported having the capability to send patient information
- 55% reported using multiple methods to send
- 31%of practices were not able to send patient information using interoperable technology
    - This capability varied by practice size with larger practices more likely to report having the capability to send patient information

Interoperably Receive

A summary variable that counts the number of interoperable methods used by practices to receive patient information was created; note this is a refinement of Table 8. The responses that were considered interoperable were: 1) EHR vendor-based HIE tools, 2) IHIN/CyncHealth, and 3) Other HIN/HIO. The results are depicted as none, one, or more than one of these interoperable methods - and displayed by practice size (Table 13).

Table 13. Count of methods for interoperable receive, by practice size.

Average # providers	<10 per Practice		>=10 per Practice		Total	
Receive Methods	**Practices**	**%**	**Practices**	**%**	**Practices**	**%**
None	283	65%	6	1%	289	33%
One	84	19%	27	6%	111	13%
>One	69	16%	404	92%	473	54%
Total	**436**	**100%**	**437**	**100%**	**873**	**100%**

- 54% of all practices reported using more than one method to receive patient information,
- 33% of practices were not able to receive patient information using interoperable technology.
    - This capability varied by practice size with larger practices more likely to report having the capability to receive patient information.

Query

A summary variable that counts the number of methods used to query for patient information was created; note this is a refinement of Table 10. The responses that were considered interoperable were: 1) EHR vendor-based HIE tools, 2) Access to other organizations' EHR, 3) IHIN/CyncHealth, and 4) Other HIN/HIO. The results are depicted as none, one, or more than one of these query methods - and displayed by practice size (Table 14).

Table 14. Count of methods for interoperable query, by practice size.

Average # providers	<10 per Practice		>=10 per Practice		Total	
Query Methods	**Practices**	**%**	**Practices**	**%**	**Practices**	**%**
None	217	50%	1	0%	218	25%
One	76	17%	20	5%	96	11%
>One	143	33%	416	95%	559	64%
Total	**436**	**100%**	**437**	**100%**	**873**	**100%**

- 95% of all large practices (those with an average of >=10 providers) indicated that they used more than one of the methods listed in the survey to query data,
- 25% of practices overall, and half of the smaller practices (<10 providers) used none of the methods to query.

Integrate

A summary variable that counts how many of the 7 types of information the practice integrates as structured data was created; note this is a refinement of Figure 6. The categories included: 1) Lab/pathology results and reports, 2) Radiology reports/PACS images, 3) Visit summary, 4) Alerts such as admission, discharge or transfer (ADT) notifications, 5) Patient data from mobile devices or wearables, 6) Social determinants of health (SDOH), and 7) Medications. Results of this count variable are collapsed into three categories: none, one, or more than one of these types of data. The data are displayed by practice size (Table 15).

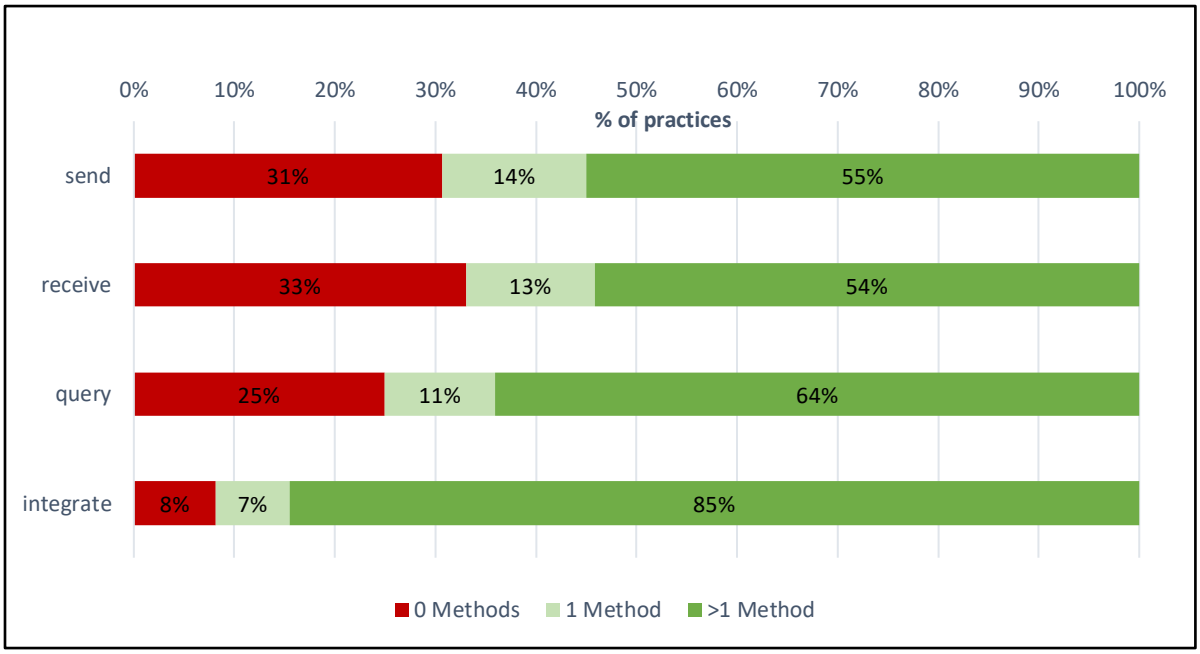
Table 15. Count of types of data integrated, by practice size.

Average # providers	<10 per Practice		>=10 per Practice		Total	
Integrate Types of Data	**Practices**	**%**	**Practices**	**%**	**Practices**	**%**
None	68	16%	3	1%	71	8%
One	31	7%	33	8%	64	7%
>One	337	77%	401	92%	738	85%
Total	**436**	**100%**	**437**	**100%**	**873**	**100%**

- 92% of practices were able to integrate one or more types of information into their EHR.
    - 77% of smaller practices (with <10 providers per practice) were able to integrate more than one type of data
    - 92% of larger practices (with >=10 providers) were able to integrate more than one type of data
- 8% of practices were not able to integrate any of these types of patient information

Practice capabilities to electronically send, receive, query, and integrate information from outside their organization are summarized below. The proportion of practices that can perform the function using one or more than one method was calculated (Figure 9).

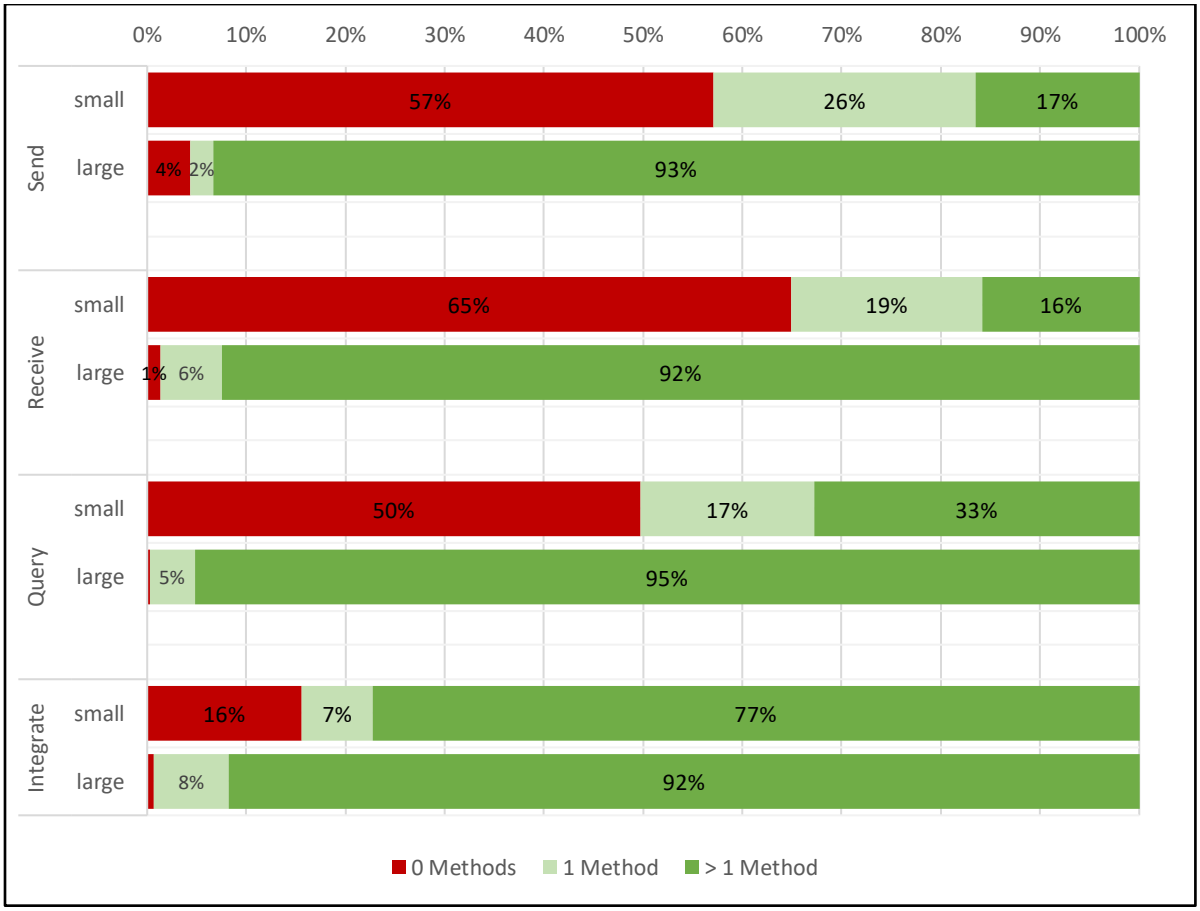
Figure 9. Interoperability summary.



- 69% of practices send patient information
- 67% receive patient information
- 75% query for patient information using at least one interoperable method
- Many practices send, receive, and/or query using more than one method
- Nearly 92% of practices integrate at least one type of information into their EHR
- 85% integrate more than one type of information

Practice capabilities vary by practice by size (Figure 10).

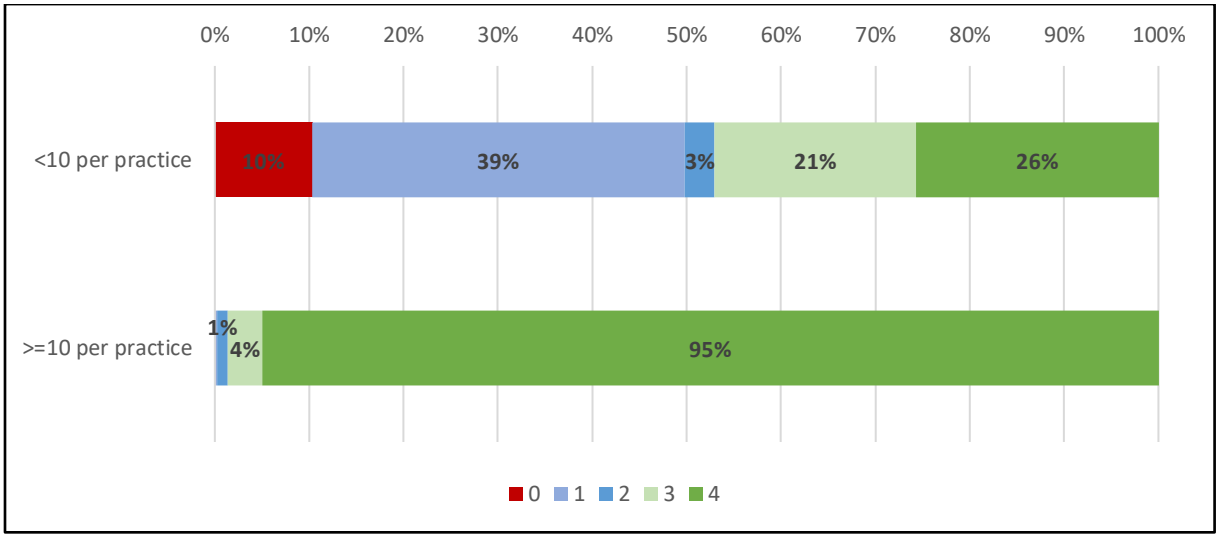
Figure 10. Interoperability summary by practice size.



- The larger practices (those with an average of >=10 providers per practice) reported being able to send (95%), receive (98%), and/or query (98%), using one or more interoperable method, and to integrate at least one type of data into the EHR (99%).
- By comparison, the smaller practices (those with an average of <10 providers per practice) reported being able to send (43%), receive (35%), and/or query (50%), using one or more interoperable method, and to integrate at least one type of data into the EHR (84%)

For the final analysis, the proportion of providers who can interoperably send, receive, query, and integrate is examined by practice size. The count of how many of these interoperable measures were achieved is depicted (Figure 11).

Figure 11. Count of interoperability measures achieved, by practice size.



- 95% of larger practices reported being able to do all four: send, receive, query, and integrate at least one type of data into the EHR
- For smaller practices, only 26% do all four, 21% do three, and 10% had not achieved any of the interoperability measures

6. Summary

The survey response rate was 85%. This high rate was largely attributable to the personalized outreach prior to launching the survey, and follow-up reminders from the HIT Advisor while the survey was in the field. Ultimately, the respondents represented 873 practices with approximately 8,153 providers (Table 3).

A total of 98% of practices use 2015 certified EHRs. This indicates that overall, EHR adoption and use for those eligible professionals participating in the Medicaid Promoting Interoperability Program throughout Iowa clinics and practices has been successful over the past ten years.

Information regarding SDOH was recorded in the EHR for 81% of practices, and 67% of practices reported they integrate this information into the EHR as structured data (Table 5). This capability varied by practice size with 95% of larger practices (those with an average of 10 or more providers) reporting the ability to integrate SDOH in the EHR compared to 38% of smaller practices. To send patient referrals for SDOH, 61% of practices use a combination of electronic and paper, while only 4% were able to use electronic only methods – either Direct Secure Messaging or EHR-based message (Figure 1).

This survey explored interoperability capabilities to send, receive, query, and integrate information with organizations outside their practice. Differences in the types and number of different methods used were examined. In addition, differences in capabilities by practice size were examined. Direct Secure Messaging was the most commonly reported method to electronically send (84%) and receive (79%) patient information. EHR vendor-based HIE tools was the second most commonly used method to send information outside the practice - 59% of respondents (Table 8), and 62% used EHR vendor-based HIE tools to receive this information.

It was common for practices to use more than one method to send (55% of practices – reference Table 12) or receive (54% of practices – reference Table 13). Despite efforts to increase interoperability, 22% of respondents representing 188 practices reported that they do not engage in health information exchange using EHR vendor-based HIE tools or any HIE/HIN/HIO (Table 8), even though 93% had a 2015 certified EHR.

Although Direct Secure Messaging was the most frequently used electronic method for sending and receiving patient information Table 8), it was also a high priority for future HIT implementation (Figure 7). Several respondents provided comments related to a desire to improve usability of Direct Secure Messaging – such as a central registry for providers/practices to obtain contact information so that patient data could be requested or sent, and the wish for more practices to use Direct Secure Messaging.

More than 600 practices (69%) use EHR vendor-based HIE tools to query for patient information (Table 10). Nearly 20% of practices use IHIN/CyncHealth, and 3% use some other HIE/HIO to query. One-fourth of practices were not able to query using any of the interoperable methods mentioned, and 64% are capable to query using two or more methods (Table 14).

The final component of interoperable information exchange studied involved a question regarding integration of data from outside organizations. The types of information most frequently integrated into the EHR from outside organizations as structured data were: 1) medications, 2) lab or pathology, and 3) visit summary (Figure 3). In fact, 76% of practices reported they integrated all three of these data types. Data were analyzed to examine how many of these data types were being integrated (none, one, more than one type). Eighty-five percent of practices reported integrating more than one type of information (Table 15). An additional 7% of practices indicated that they were integrating one type of information and 8% reported that they were not integrating any of these information types.

Overall, these results confirmed that practice size made a difference in the interoperability components, with smaller practices reporting less capability to send, receive, and query patient information. This study confirmed that most practices are using 2015 certified EHRs and yet still face challenges with interoperable data exchange. Respondent comments indicated organizations struggle with having enough resources – both funding and staffing expertise, to make progress.

Beyond the interoperability components, the survey examined how practices are using the information from their EHR to impact patient care. Organizations reported their practices analyze and use patient information from the EHR to perform a variety of activities to improve quality and/or efficiency of care. Most practices (85%) engage in data analytics, for example, to monitor care or enhance quality of care, population health, or operational efficiency. Many practices (83%) used EHR data to coordinate patient care to improve population health (Figure 4).

Practices reported they already completed implementing a variety of technology for information sharing and providing patients with access to health information. A total of 82% of practices have a patient portal, 75% have telehealth capabilities, and 73% have patient APIs (Figure 6). Among organizations that did not already complete implementation of the types of technology

mentioned in the survey, the four highest priorities were to increase use of: 1) Direct Secure Messaging, 2) quality reporting APIs, 3) telehealth, and 4) integrating SDOH information into the EHR (Figure 7).

Many of the practices indicated that APIs for reporting quality or performance data (e.g., to Medicare, Medicaid, or other payers) are a priority, but only 21% of providers said they completed APIs for reporting. This study found 82% of practices already had patient portals and have implemented patient APIs (73%). Twenty-one percent of practices can integrate data from patient wearable devices.

Finally, the types of entities most frequently identified as priorities for future data sharing, were: 1) community-based organizations, 2) payers, and 3) nursing homes (Figure 8).

7. Discussion

The results of this study provide valuable insight into the current Iowa HIT landscape of provider practice and clinics who participated in the Promoting Interoperability Program. Even though nearly all of the practices that responded use 2015 certified EHRs, and presumably have the capability to send and receive patient information interoperably, many are not yet optimizing their EHRs for use or participation in interoperable data exchange. While practices frequently reported using data exchange capabilities within their EHR vendor systems, use of proprietary EHR vendor-based HIE raises questions about whether all parties will be willing to expend additional effort to share data with providers using different EHR vendors. More work is needed to exchange information among disparate EHR systems – such as through interstate health information exchange networks (HIN/HIOs).

This study documented large discrepancies between capabilities for large and small practices. Although nearly all large practices surveyed were able to send, receive, query, and integrate data from outside their organization – only a fraction of the smaller practices had achieved interoperability. Some of these practices did not necessarily intend to become completely interoperable since they were not required by CMS to do so (e.g., specialist providers), some explained there were some privacy concerns (e.g., HIV, mental health, and behavioral health providers), and others commented that financial grants would be helpful in achieving interoperability (e.g., purchasing tools and additional features).

Although practices have been able to integrate at least some types of essential patient information from providers outside their organizations there are notable disparities in data integration between smaller and larger practices. Furthermore, to achieve interoperability, more types of information are needed to provide a full picture of patient health. Future efforts should include integration of additional data types – some of which were reported as currently integrated by fewer than 50% of practices: radiology/PACS, SDOH from community-based organizations, and patient wearables.

The CMS Promoting Interoperability Programs were only for eligible professionals (EPs) and eligible hospitals (EHs). Many types of health care providers were not eligible for assistance[28] – and as a result, provider practices are still working to achieve interoperable information

[28] https://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms

exchange with nursing facilities, labs, and SDOH community-based providers. SDOH data from community-based organizations has been identified by ONC as a priority to eliminate health disparities and improve population health.[29] The U.S. Core Data for Interoperability (USCDI) V2 recently released a new data class, including the data elements for coding SDOH data,[30] which should help practices improve data exchange.

Despite progress, there are still providers using fax to exchange data. Respondent comments indicated this is sometimes due to practices working with providers that don't have interoperable exchange capabilities. The ONC published a "Strategy on Reducing Regulatory and Administrative Burden Relating to the Use of Health IT and EHRs"[31] which reiterates the need to reduce burden for providers by promoting common standards for Health IT systems that support interoperability.

Finally, a surprising number of practices reported using their EHR for data analytics and population health activities. These are advanced capabilities needed for value-based care and clinical quality improvement, indicating that organizations are working to balance compliance with Meaningful Use and interoperability with urgent need for analytics. This suggests that providers are working on a wide variety of HIT initiatives. Great progress has been made due to the Promoting Interoperability Programs, and organizations indicate that there are still many priorities to meaningfully use HIT and fully realize value of these investments.

[29] https://www.healthit.gov/topic/health-it-health-care-settings/social-determinants-health
[30] https://www.healthit.gov/isa/uscdi-data-class/social-determinants-health#level-2
[31] ONC." Strategy on Reducing Regulatory and Administrative Burden Relating to the Use of Health IT and EHRs." February 2020. Downloaded from: https://www.healthit.gov/topic/usability-and-provider-burden/strategy-reducing-burden-relating-use-health-it-and-ehrs

B. American Hospital Association Survey Summary

1. Background

The American Hospital Association™ (AHA) conducts nation-wide periodic surveys of HIT and HIE adoption by its member hospitals. The survey results below summarize the most recent survey, 2020, as reported in 2021.[32] Out of the 118 community hospitals in Iowa,[33] 66 hospitals responded to the survey including 63 who also had outpatient facilities. Questions included both inpatient and outpatient areas of the hospitals.

2. Summary of Findings

Findings from the survey are represented as both counts (e.g., number of hospitals that checked "Yes") followed by the percentage of this response (e.g., 94%). Note that although AHA presented the counts, Sum-IT calculated the percentages for ease of interpretation.

a. Use of Certified EHR Systems

The survey asked "Does your hospital use an EHR system that has been certified (by ONC)?"

- 98% of hospitals use a certified EHR (61/62 responses)
    - For 95% of these hospitals (57/60) the EHR was 2015 certified
- 87% of hospitals who have outpatient facilities use the same EHR system for the primary inpatient and primary outpatient EHRs, (54/62 responses)

b. Sending and Receiving Data

The survey asked "When a patient transitions to another care setting outside of your organization or hospital system, how often are the following methods used to send a summary of care record? Sum-IT calculated the proportion of respondents who use each method; that is, the "% Yes" is the sum of the "Often", "Sometimes", and "Rarely" categories divided by the number who responded for each row. Results are depicted in Table 16.

Table 16. Hospital Methods for Sending Patient Information as a Summary of Care Document

Summary of Care Sending Methods	% Yes	Often	Sometimes	Rarely	Never	Do not know/NA
a. Mail or fax	98%	36	14	12	0	1
b. eFax using EHR	90%	34	18	5	6	0
c. Provider portals that allow outside organization to view records in your EHR system	56%	18	10	7	26	2
d. Interface connection between EHR systems (e.g., HL7 interface)	41%	11	13	2	35	3
e. Login credentials that allow access to your EHR	59%	13	12	11	24	1
f. Other	NA	NA	NA	NA	NA	NA

[32] "American Hospital Association. "2020 AHA Annual Survey. Information Technology Supplement: Public Health and COVID-19 Focus." Chicago, IL. (Data was collected in 2021 for this Survey). Results obtained via email from Iowa Hospital Association.

[33] https://www.ihaonline.org/information/economic-impact-report/

Summary of Care Sending Methods	% Yes	Often	Sometimes	Rarely	Never	Do not know/NA
g. HISPs that enable messaging via DIRECT protocol	63%	17	18	2	13	9
h. Regional, state, or local health information exchange organization (HIE/HIO). *NOT local proprietary, enterprise network*	61%	19	15	3	19	5
i. EHR vendor-based network that enables exchange with vendor's other users. (e.g., Epic's Care Everywhere)	65%	27	9	5	20	2
j. National networks that enable exchange across different EHR vendors (e.g., Commonwell, e-health exchange, Carequality)	49%	16	10	5	23	9
k. Other	NA	NA	NA	NA	NA	NA

- The most commonly used methods to send patient information were: mail/fax, e-fax, electronic EHR vendor-based networks, HISPs
- The three methods with the highest number of "Never" responses were: interface between EHRs, provider portals, login credentials to access the EHRs

We calculated results similarly for the responses of methods for receiving patient information in summary of care documents (reference Table 17 below).

Table 17. Hospital Methods for Receiving Patient Information as Summary of Care Documents

Methods to Receive Summary of Care Records	% Yes	Often	Sometimes	Rarely	Never	Do not know /NA
a. Mail or fax	98%	39	21	3	0	1
b. eFax using EHR	76%	29	14	5	11	4
c. Provider portals that allow you to view records in another organizations' EHR system	59%	12	13	13	24	2
d. Interface connection between EHR systems (e.g., HL7 interface)	44%	7	14	7	34	2
e. Access to other organizations' EHR system using login credentials	54%	8	12	13	24	4
f. Other	NA	NA	NA	NA	NA	NA
g. HISPs that enable messaging via DIRECT protocol	62%	17	13	7	13	10
h. Regional, state, or local health information exchange organization (HIE/HIO). *NOT local proprietary, enterprise network*	56%	16	13	6	23	5
i. EHR vendor-based network that enables exchange with vendor's other users. (e.g., Epic's Care Everywhere)	57%	24	9	2	23	3

Methods to Receive Summary of Care Records	% Yes	Often	Sometimes	Rarely	Never	Do not know /NA
j. National networks that enable exchange across different EHR vendors (e.g., Commonwell, e-health exchange, Carequality)	53%	19	6	8	22	7
k. Other	NA	NA	NA	NA	NA	NA

- The most commonly used methods to receive summary of care documents were: mail/fax, e-fax, HISPs, provider portals, and vendor-based networks
- The three methods with the highest number of "Never" responses were: interface between EHRs, login credentials to EHR, and provider portals. This ranking was the same as send methods.

c. Patient Engagement

The survey asked hospitals about functionality related to patient engagement. The question stated, "Are patients who receive care provided by your hospital or outpatient sites able to do the following…" For Table 18, Sum-IT calculated the "% Yes" as the number of "Yes" responses for either inpatient (IP) or outpatient (OP) over the total responses for IP or OP in each row.

- The most commonly used methods to receive summary of care documents were: mail/fax, e-fax, HISPs, provider portals, and vendor-based networks.
- The three methods with the highest number of "Never" responses were: interface between EHRs, login credentials to EHR, and provider portals. This ranking was the same as send methods.

Table 18. Patient Engagement for Inpatient (IP) and Outpatient (OP) Information

Are patients who receive care provided by your hospital or outpatient sites able to do the following:	% Yes (IP)	Yes (IP)	No (IP)	% Yes (OP)	Yes (OP)	No (OP)
a. View their health/medical information online in your portal	95%	61	3	91%	58	6
b. Download health medical information from their medical record from your portal	95%	61	3	89%	57	7
c. Import their medical records from other organizations into your portal	55%	34	28	52%	32	30
d. Electronically transmit (send) health/medical information to a third party from your portal in any format including scanned or structured documents	63%	40	24	58%	37	27
e. Electronically transmit (send via email or secure message) health/medical information to a third party from your portal (in a structured format such as CCDA)	61%	39	25	58%	37	27
f. Request an amendment to change/update their medical record online	72%	46	18	69%	44	20

Are patients who receive care provided by your hospital or outpatient sites able to do the following:	% Yes (IP)	Yes (IP)	No (IP)	% Yes (OP)	Yes (OP)	No (OP)
g. Designate family member or caregiver to access health/medical information on behalf of the patient (e.g., proxy access)	92%	59	5	88%	56	8
h. View their clinical notes (e.g., visit notes including consultation, progress, history and physical) in their portal	81%	52	12	81%	52	12
i. Access their health/medical information using applications (apps) configured to meet the application programming interfaces (API) specifications in your EHR	75%	47	16	67%	42	21
j. Access their health/medical information using applications (apps) configured to meet Fast Healthcare Interoperability Resource (FHIR) specifications	46%	29	34	38%	24	39
k. Submit patient-generated data (e.g., blood glucose, weight)	55%	35	29	66%	42	22
l. Send/receive secure message with providers	86%	55	9	83%	53	11
m. Pay bills online	84%	52	10	82%	51	11
n. Request refills for prescriptions online	NA	NA	NA	81%	52	12
o. Schedule appointments online	NA	NA	NA	38%	24	40

- The most common engagement capabilities for patients treated in inpatient hospitals were: view on-line portal, download from on-line portal, and designate proxy access.
- The most frequent capabilities not available for patients in inpatient hospitals were: import into the portal, access using apps (APIs) configured for FHIR, submit patient-generated data, and import other medical records into the portal.
- The most common engagement capabilities for patients treated in the hospital outpatient setting were the same as for IP: view on-line portal, download from on-line portal, and designate proxy access.
- The most frequent capabilities not available in the outpatient setting were: import into the portal, access using apps (APIs) configured for FHIR, and schedule appointments on-line.

d. Querying Information

Hospitals were asked “Does your hospital query electronically for patients’ health information (e.g., medications, outside encounters) from sources outside of your organization or hospital system?”

- 77% of hospitals responded “Yes” 49/64 responses).

e. Integrate Patient Information

In response to the question: “Does your EHR integrate the information contained in summary of care records received electronically (not eFax) without the need for manual entry?”

- 48% of hospitals responded “Yes, routinely” (29/60 responses).

- 18% responded “Yes, but not routinely” (11/60 responses).

f. Interoperability/Data Exchange Challenges/Barriers
In response to the question: “Which of the following issues has your hospital experienced when trying to electronically (not eFax) send, receive or find (query) patient health information to/from other organizations or hospital systems? (Please check all that apply).”

The most common barriers to sending patient health information were:
- It is difficult to locate the Direct address of the provider to send the information (32 hospitals)
- Providers we would like to electronically send patient health information to have an EHR; however, it lacks the technical capability to receive the information (26 hospitals)
- Difficult to locate the address of the provider to send the information (e.g., lack of provider directory) (26 hospitals)
- Providers we would like to electronically send patient health information to do not have an EHR or other electronic system with capability to receive the information (22 hospitals)
- Many recipients of our electronic care summaries (e.g., CCDA) report that the information is not useful (21 hospitals).

g. Availability and Use of Electronic Data that is Exchanged
Hospitals were asked, “When treating a patient that was seen by a provider outside your organization or hospital system, do providers at your hospital routinely have necessary clinical information available electronically (not e-Fax) from outside providers or sources when treating a patient that was seen by another health care provider/setting?”

- 55% hospitals responded “Yes” (35/64).

h. Reporting of Public Health Measures Electronically
Hospitals were asked the question: “For each type of public health reporting, please indicate whether your hospital uses automated (e.g. EHR generated data sent electronically/automatically to the public health agency), manual (e.g. chart abstraction with data faxed or re-input into a portal), or a mix of both types of processes (e.g. files electronically generated from the EHR but manual steps required to transmit to public health agency) to transmit the data.?” Reference results in Table 19.

Table 19. Hospital Reporting to Public Health

Public Health Reporting	% Fully or primarily automated	Fully or primarily automated	Mix of automated and manual process	Fully or primarily manual	Do not know/NA
1. Syndromic surveillance reporting	27%	16	5	10	28
2. Immunization registry reporting	80%	49	2	6	4
3. Electronic case reporting	25%	15	7	14	25
4. Public health registry reporting	33%	20	12	13	16

Public Health Reporting	% Fully or primarily automated	Fully or primarily automated	Mix of automated and manual process	Fully or primarily manual	Do not know/NA
5. Clinical Data registry reporting	31%	18	12	9	20
6. Electronic reportable laboratory result reporting	66%	40	6	6	9
7. Hospital capacity and utilization of medical supplies	8%	5	14	27	14

- Electronic automated processes are most commonly used, much more so than primarily manual ones.

When hospitals were asked "Does your HIE charge your hospital additionally to submit data for public health reporting activities?"

- 28% of hospitals responded "Yes", 17/61, 21 responded "No", and 24 responded "Don't know".

When hospitals were asked "Does your EHR developer charge your hospital additionally to submit data for public health reporting activities?"

- 32% of hospitals responded "Yes", (20/62), 22 responded "No", and 20 responded "Don't know".

i. Electronic Notifications
Hospitals were asked, "When a patient visits your Emergency Department (ED), do you routinely provide electronic notification to the patient's primary care physician?"

- 87% of hospitals said "Yes", (54/62 responses).
    - In response to the question: "If yes, are electronic notifications provided to primary care physicians below? (Check all that apply)"
        - Inside the system:33, Outside the System:0, Do not know:0

j. Use of EHR data
From the 65% hospitals (40 out of 62 hospitals) that indicated that they were able to export multiple records from their EHR the following uses of the EHR data were identified:

1. Analytics and reporting- 83% yes, (33 of 40 responses)

2. Population health management- 45% yes, (18 of 40 responses)

3. Switching EHR systems- 5% yes, (2 of 38 responses)

4. Have not used the capability yet- 18% yes, (7 of 40 responses)

k. Participation in HIE Networks
In response to the question: "Please indicate your level of participation in a state, regional, and/or local health information exchange (HIE) or health information organization (HIO)."

- 78% of hospitals participate in a state, regional, and/or local health information exchange (HIE) or health information organization (HIO), (49/63 responses).

In response to the question: “Which of the following national health information exchange networks does your hospital currently actively participate in (i.e., operational exchange)?” Respondents could check all options that applied. The most frequent responses, in descending order, were:

- The Strategic Health Information Exchange Collaborative (SHIEC)/Patient Centered Data Home (PCDH) (used by 62 hospitals)
- EHR vendor-based networks (30 hospitals)
- CommonWell Health Alliance (22 hospitals)
- 56 hospitals responded to the question by indicating that they did not participate in any national health information exchange networks (either via vendor or directly).

l. Information Exchange Related to COVID-19

In response to the question: “To what extent do you agree with this statement: my hospital electronically received information from outside providers needed to effectively treat COVID-19?”

- 38% of hospitals either agreed or strongly agreed (24/63)
- 38% neither agreed or disagreed (24/63)
- 17% either disagreed or strongly disagreed (11/63) and 6% reported they don’t know (4/63)

C. Medical and Ancillary Provider Professional Associations HIT Information

SUM-IT Health Analytics contacted representatives from professional associations for Iowa medical and ancillary service providers to:

- Ascertain whether they surveyed members regarding EHR and HIT use,
- Obtain anecdotal information regarding EHR products, integrating information that originates outside the practice, and data sharing, and HIT priorities and opportunities.

1. Background

Leadership from the associations responded to questions via e-mail and virtual interviews with Sum-IT and provided other data as it was available.

The following Iowa-based professional associations provided information:

- **Iowa Pharmacy Association (IPA[34])** Represents pharmacists in retail, outpatient, acute care, and post-acute care settings.
- **Iowa Primary Care Association (Iowa PCA[35])** Provides technical assistance and training to Iowa Community Health Centers.
- **Iowa Dental Association (IDA[36])** Represents Iowa dentists.
- **Iowa Health Care Association (IHCA[37])** Includes two divisions, Iowa Center for Assisted Living (ICAL) and Iowa Center for Home Care (ICHC). IHCA represents 790 Iowa organizations that provide long-term care to Iowans.

2. Summary of Findings

Iowa Pharmacy Association (IPA) Representatives from IPA indicated that they routinely discuss HIT with members, and although a formal survey of members is not available, they were able to provide high-level information regarding HIT priorities and challenges for Iowa pharmacies.

- Electronic prescribing mandates of the National Council for Prescription Drug Programs (NCPDP) standard which includes 2-way communications between prescribers and pharmacies is under implementation now. This capability is available for most pharmacy software packages.
- In working with clinics or ambulatory providers it is very rare for pharmacists to be able to document their work in the providers EHR system; estimates are that only a small number of pharmacies can document notes in any clinic EHR.
- Some practitioners don't understand why a pharmacy would need patient healthcare information.
- IHIN/CyncHealth is rarely used by pharmacists.

[34] https://www.iarx.org/
[35] https://www.iowapca.org/
[36] https://www.iowadental.org
[37] https://iowahealthcare.org/

- It is a struggle to get lab results and vital signs information from other providers or from patient generated data. In some (rare) cases, the pharmacists will have read-only access to the EHR to get that information.
- Pharmacists would like to get more complete data from other providers including: diagnoses, other care provided, treatment plans and goals. This is becoming more critical as pharmacists are being recognized as providers and given authority to prescribe and manage medication therapy (as an "Other Licensed Provider").

Iowa Primary Care Association (Iowa PCA) The representative from the Iowa PCA provided all of the information below during the interview based upon her experience in providing services to the community health centers.

- FQHCs use Direct Secure Messaging. Many local providers within the referral network do not subscribe to this service, which means a manual process (e.g., fax) must be used for sending and receiving referrals and consultations. They typically exchange data via C-CDAs when needed. E-prescribing is routinely used for prescriptions.
- EHR-based tools are most commonly used for data sharing. FQHC data users may be given read-only access to EHRs used by outside organizations to facilitate data sharing.
- IHIN/CyncHealth is not typically used to query or search for patient data, but ADT information is routinely sent to IHIN/CyncHealth through PatientPing/Bamboo Health.
- Quality data (e.g., diabetes and hypertension) is generated through centralized processes and reported electronically to CMS. Information to other payers is sent through custom interfaces developed by Iowa PCA. The payer interfaces are manual, not automatic, with the EHR software.
- The Iowa PCA contact believes that they are restricted in their ability to share data by vendor capabilities and the cost and effort required to purchase/develop customized solutions.
- Data sharing for referrals with outside organizations is highly dependent on the capabilities of the organization they want to share with. Many practices are prepared to use Direct Secure Messaging but find that many of the organizations they want to share data with are not.
- Primary care practice representatives believe the State may be able to facilitate workgroups to share best practices and initiate discussion on quality improvement efforts through quality data monitoring.

Iowa Dental Association (IDA) A representative from the IDA spoke with us, although a formal survey of EHR and HIT use among members is not available. The IDA also reached out to the national association (American Dental Association; ADA) to obtain additional information.

- The Iowa Prescription Monitoring Program (PMP[38]) requires dentists to view the opioids prescribing database prior to prescribing opioids. Some dentists' EHRs have implemented the capability to access the PMP from their EHR.

[38] Refer to Iowa Board of Pharmacy: https://pharmacy.iowa.gov/prescription-monitoring-program Accessed 12/04/2021.

- Eligibility checking with Iowa Medicaid is very time consuming. Dental practices would like to see a streamlined, automated approach rather than the current manual process. Iowa Medicaid managed care workflows for prior authorizations could also be improved.
- According to the ADA, some dentists use secure email; but most of the data exchanges with providers are still done with paper nationally.
- According to the ADA, healthcare data shared with patients is usually either by paper or USB thumb drives.
- The biggest barrier for data exchange is that there were no standards available for the exchange of dental data. The ADA has now partnered with HL7 to develop standards for the exchange of dental data[39].

Iowa Health Care Association (IHCA) Sum-IT Health Analytics communicated with IHCA via email to obtain a brief update on the status of EHR adoption and data sharing for long-term care providers represented by IHCA.

- Most nursing facility providers use PointClickCare, MatrixCare, or American HealthTech for their EHR system.
- Most home health organizations are not likely electronically sharing data at this point.

3. Conclusions

Data sharing outside of acute care is not occurring routinely. This is due in part to lack of standards, regulations, and incentives to promote interoperability. IHIN/CyncHealth is not routinely used by providers outside of acute care for data sharing.

D. Key Informant Interviews (KIIs)

1. Background

IME asked Sum-IT Health Analytics to conduct two rounds of Key Informant Interviews (KIIs) as part of the 2021 Health IT Environmental Scan. The first set of KIIs focused on payers and was designed to obtain a more complete understanding of the current state and immediate future plans for information sharing in Iowa from the payers' perspective. The second round involved four KIIs with leaders from four Iowa state government departments.

2. Payer KIIs

a. Methods

Sum-IT conducted four payer KIIs in December 2020 and January 2021. Interviewees included two managed care organizations with contracts with IME (Iowa Total Care and Amerigroup), Wellmark Blue Cross/Blue Shield, and the Iowa Insurance Commissioner. All four interviews were conducted online with both audio and video, although none of the payers used the video feature. The interviews were approximately 30 minutes each. Two Sum-IT team members facilitated each session.

A semi-structured interview format was used, so that all participants were asked broad questions about the same data sharing and HIT themes. Interview topics were distributed to

[39] HL7 dental data http://build.fhir.org/ig/HL7/dental-data-exchange/index.html Accessed 12/04/2021.

participants in advance to provide time for interviewees to reflect on their data sharing successes and needs, as well as to obtain input from others within the organization as needed.

The questions posed related to the following themes:

- HIT Successes
- HIT Priorities
- Significant HIT opportunities for data sharing
- Open ended question to allow the interviewee to share additional thoughts

Sum-IT compiled notes from each interview. The key findings that emerged from the four payer interviews are summarized below.

b. Findings

HIT Successes – Current Infrastructure and Data sharing

- One payer is currently receiving some electronic data from some health systems. But this is using custom formats as well as direct interfaces on a monthly or quarterly basis. The payer's file layout must be used, and a basic ETL process is used to ingest the files.
- A new Health Utility Network (HUN) will enable claims data sharing between several payers with a plan to go live in January 2022. This same platform will allow members to access information from their payer.
- One payer uses ADTs from PatientPing for utilization management and care management.
- One payer is able to interface with Iowa's Immunization Registry System (IRIS).
- One payer offers APIs to share data with patients, primarily claims data.
- One Payer has adopted Fast Healthcare Interoperability Resources (FHIR) standards for data sharing.
- One payer has a member portal where they share claims and limited health information, such as screenings and other preventive care.
- One payer works directly with a few large provider groups, to share Healthcare Effectiveness Data and Information Set (HEDIS) information.

HIT Priorities – Immediate Plans for Data Sharing

- The receipt of CCDs is a near term goal to help one of the payers with utilization management, including authorizations. The overall goal is to have bidirectional interfaces with more providers.
- One payer would like a bidirectional sharing system with providers for ADT information, which could feed their care management system.

- A big priority is to obtain clinical data from providers to coordinate care when members go to providers outside of their network for care.
- Payers believe that federal interoperability rules will assist them in meeting their goals and will not be a significant burden to them.
- One payer stated that they will do what is needed to comply with federal rules.
- Payers are hesitant to share patient data for competitive reasons.
- There are no current efforts for any of the payers to obtain SDOH information or referrals from providers or other sources.

Most Significant HIT Opportunities

- It would be helpful for the state to provide "enduring investment" to promote interoperability and to provide incentives, rules, and penalties that cause providers to move forward with interoperability.
- Provide more integrated, sequential, deeper clinical information to address the fragmented availability of information that patients confront when they see a variety of unaffiliated providers.
- Share claims and enrollment data with members. One payer is using a new payer-based HIE which they are helping to establish with a small number of payers in the next year, and within the next few years they plan to exchange data with covered entities including: costs of care, duplication of services, member data sharing consents, benefits and claims.
- The government, either federal or state, is needed to increase data sharing by providers.
- Iowa should review how data sharing was successfully handled in other markets, and whether there are benefits to patients. In Iowa, we need consensus about what to do for HIE, and we should not re-invent the wheel. It is unclear how to finance this and who should pay.
- One payer agreed that sharing SDOH is a significant opportunity.

Additional Feedback from Payers Regarding Data Sharing

- The government is needed to provide standardization and motivation to providers, including regulatory requirements.
- The payers rate Iowa well behind other states in data sharing.
- Hospitals are sharing more data among themselves but are very wary of losing patient market share and have concerns about data security issues. One payer expressed concern that independent hospitals are left out of current data sharing, pressure to merge with larger health systems.
- Once providers are able to share standardized data, via some sort of HIE, they will like it. For example, providers have been leveraging telehealth capabilities due to COVID-19 and some like it; whereas they may not have tried it without this motivation.

- One payer does not use IHIN/CyncHealth because they perceive it as “unstable and not robust enough” for their needs.

3. State Government Agency KIIs

a. Methods

Sum-IT conducted four KIIs with representatives from state agencies in September and October 2021. The interviewees were leaders from the following Iowa state government departments:

- **Iowa Department of Human Rights (DHR)**.[40] DHR works to ensure basic rights, freedoms and opportunities for all by empowering underrepresented Iowans and eliminating economic, social and cultural barriers. DHR is providing funding and computer expertise to the Iowa Department of Corrections (DOC).[41]
- **Iowa Department of Human Services (DHS)**.[42] DHS works to help Iowans achieve healthy, safe, stable, and self-sufficient lives through the programs and services provided.
- **Iowa Office of the Chief Information Officer (OCIO)**.[43] The OCIO leads, directs, manages, coordinates, and provides accountability for information technology resources of state government.
- **Iowa Office of the Governor**.[44] Provides leadership for state agencies.

All interviews were conducted online with both audio and video; all parties used full audio and video features. The interviews were approximately 30 minutes each. Two Sum-IT team members facilitated each session.

A semi-structured interview format was used, so that all participants were asked broad questions about the same data sharing and HIT themes. However, prior research was conducted so that during the interview the questions were tailored to the particular agency objectives and data needs. The broad interview topics were distributed to participants in advance to provide time for interviewees to reflect on their data sharing successes and needs.

The questions posed related to the following themes:

- HIT successes
- HIT priorities
- Significant HIT opportunities
- Future plans and additional thoughts about data sharing

Sum-IT compiled notes from each interview. The key findings that emerged from the interviews are summarized below.

[40] https://humanrights.iowa.gov/
[41] https://doc.iowa.gov/
[42] https://dhs.iowa.gov/
[43] https://ocio.iowa.gov/
[44] https://governor.iowa.gov/

b. Findings

HIT Successes – Current Infrastructure and Data sharing

- DOC has a system through the DHR called the Criminal Justice Information System, or CJIS, that exchanges about 400,000 pieces of data every day. Currently none of this is health data.
- Federal COVID relief funding has recently been received by the DHR and is going to be used to connect the CJIS system with IHIN/CyncHealth to improve data sharing. There is an influx of funding related to the pandemic which provides opportunities around data sharing and developing proof of concept for using IHIN/CyncHealth to improve access to health information in jails and prisons.
- Since 2010 the OCIO has transformed the IT culture so that various departments within the Executive Branch are comfortable with cloud-based services. This was done by piloting the use of Amazon Web Services for public facing systems such as for licensing and requesting other government services. This is in contrast to the state managed data centers that staff are more familiar with.
- The most common belief among state government leaders interviewed is healthcare providers have made some progress in technology implementation over the last 10 years and information sharing is much improved, but still has a long way to go to meet the needs of patients, providers, and state agencies.
- Currently the DHS systems are not compatible with the HIE.

HIT Priorities – Immediate Plans for Data Sharing

- DOC is working on a project to help improve the sharing of inmate medical information via CCDAs at intake, transfer, and discharge from custody. The project has currently connected two jails (Polk County and Woodbury County) to the DOC system, and they anticipate connecting with other high-volume jails and other correctional system facilities while using IHIN/CyncHealth as their health information exchange.
- Widespread sharing of data with state agencies (e.g., public health and governor's health policy team) to facilitate population health efforts would be very useful and a significant benefit of increased use of IHIN/CyncHealth.
- The OCIO is highly engaged in the development of a Master Data Management (MDM) system to facilitate data sharing between government agencies. The OCIO can use the MDM to broker data sharing for its clients, which include state agencies, healthcare providers, and other organizations according to their requests and security needs.
- A DHS priority is to implement robust data analytics and update the Medicaid enterprise systems (MES).
- The use of patient specific and population level information from providers is not easily accomplished. The data provided is not standardized or uniformly available, especially when comparing fee-for-service and other types of insurance plans.
- Sharing the COVID-19 related history of admitted patients is needed and is one of the current projects.

- DHR/DOC is working on an interface with IHIN/CyncHealth to exchange the health care data needed.

Most Significant HIT Opportunities

- Many of the participants indicated that promoting increased use of IHIN/CyncHealth is an area where the State can have a significant impact in data sharing.
- Government participants are having great difficulty doing population health level analyses to identify the most important health issues. The lack of a single comprehensive data source and strong analytics tools makes monitoring remediation efforts and provider performance difficult.
- Some state IT systems are outdated, and it is not possible to download or analyze data. IT systems are siloed and created for a specific purpose and these had not been traditionally designed with interoperability or data sharing features. Furthermore, many cannot be accessed remotely, which has been difficult for employees to manage during the COVID-19 remote work environment. Re-procurement of some state IT systems is needed to address these issues, and some systems may be modified to accommodate additional features.
- Government participants would like to be able to integrate information from a variety of sources including health/healthcare and SDOH data (e.g., housing and educational needs for children in the child welfare system, persons coming in and leaving corrections facilities).
- Upon changes in status such as employment, incarceration, education; government participants would like to be able to aggregate various types of customer data to impact services and determine eligibility for services (e.g., childcare, healthcare) when the customer interacts with state government.
- Participants have indicated that healthcare data exchange is sometimes hindered by questions about patient consent and privacy. The OCIO could define standards for data use of PII vs. aggregated information to improve privacy.
- Create comprehensive profiles of children in foster care including medical information.
- Upgrade child welfare reporting and data sharing to support case workers.
- DHS would like to be able to connect incarcerated individuals with Medicaid services, such as mental health and substance abuse treatment.
- Iowa Department of Public Health would like to see the Iowa Disease Surveillance System (IDSS) add syndromic surveillance. Currently it only includes reportable diseases. The system is old and data cannot be exported from IDSS for analysis.
- DHS would like to be able to do analytics with Medicaid data to identify and monitor the need for public health interventions and monitor those efforts to improve public health.

Additional Feedback from Government Agencies Regarding Data Sharing

- Currently, state government is challenged by a shortage of IT professionals to work on technology projects. They have difficulty hiring programmers who might be able to help address analytic and system integration needs.

- Government participants agreed that data sharing has not reached its potential in Iowa and in order for them to move forward with quality and population health management complete data is needed.
- Government participants are willing to work to increase the level of health/healthcare data sharing within the state as a convener and an arbiter of standards and to provide incentives for sharing. They do not believe that they can successfully impose mandates on health systems.
- The OCIO has not been focused on healthcare data exchange but is willing to engage in these issues if their assistance is requested. They plan to focus on all types of data standardization and exchange using the MDM system, which could include health data.
- The OCIO does not know if the state is committed to helping sustain IHIN/CyncHealth. They do not think the State/OCIO should have any role in state requirements for providers/payers or interoperability standards (federal government has done this).
- Government participants have indicated that they understand that IHIN/CyncHealth is of limited value due to the incomplete data available through it. Increased use of IHIN/CyncHealth might be accomplished through reduced prices or subsidies.
- DOC has identified substantial benefits to participants in the criminal justice system through the centralization of healthcare information to impact transitions within the system and is working with IHIN/CyncHealth to achieve those benefits.

4. Conclusions - KII Common Themes

There is a recognition by most interviewees that data sharing has improved significantly in the 10 years of federal programs to promote it, but there is still a long way to go for it to become common, standard, and routinely done electronically.

Both payers and government agencies consider IHIN/CyncHealth to be the logical state-wide data sharing tool, but they also recognize that IHIN/CyncHealth does not have the completeness of data to make it useful for some providers to participate.

There is a recognition that competitive pressures and data security concerns are a significant impediment to data sharing. The impact of this has been reduced by the federal requirements/incentives/penalties for data sharing for hospitals and some other types of provider organizations. The limited data sharing done by smaller provider organizations and those not eligible for incentives, especially in post-acute care, could be improved through subsidies to minimize the cost of using HIE.

Most participants identified the State's role in improving data sharing is acting as a convener, to lead the work, and to clarify standards. Some believed that the State can provide incentives, but few indicated that the State could successfully force data sharing with regulations.

The use of patient specific and population level information from providers is not easily accomplished since the data provided is not standardized or uniformly available, especially when comparing fee-for-service and other types of insurance plans.

Several participants agreed that sharing of SDOH is a significant opportunity.

Chapter 4: Summary and Analysis of Changes Over Time

This chapter compares information from baseline and current environmental scans to highlight changes in HIT in Iowa over time. Program requirements and expectations evolved over time; therefore, some of the HIT capabilities highlighted in this chapter were not possible (or in some cases not envisioned) at the beginning of the program. To help provide context regarding the "baseline" – what things looked like at the beginning of HITECH, it may be helpful to refer to Chapter 1.

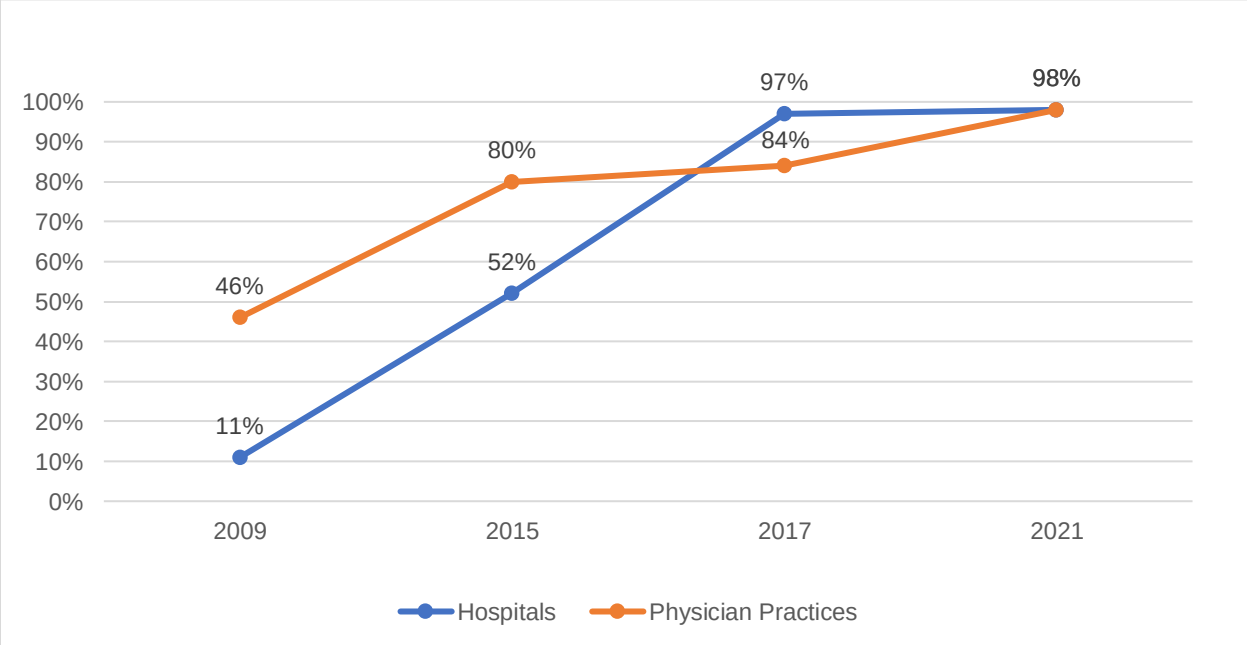
A. Baseline to current – progress

Over the course of the Promoting Interoperability program, IME performed periodic environmental scans (reference Chapters 2 and 3), which reported on surveys from different samples of providers and ascertained different information over time. Within this section of the document, we underscore progress toward interoperability.

1. EHR Use

The baseline Iowa environmental scan in 2009 collected information from Iowa hospitals and various types of medical professionals regarding EHR use (reference Chapter 2). Then, when EHR certification was in place, the environmental scans adjusted the questions to collect information regarding CEHRT use. In Figure 12, the change in EHR use for hospitals and physician practices is illustrated.

Figure 12. EHR Use – Trend



- The percentage of Iowa hospitals using an EHR in both inpatient and outpatient settings changed from 11% in 2009 to 98% using a certified EHR currently– an improvement of 87%

- Similarly, the percentage of Iowa physician practices using an EHR changed from 46% in 2009 to 98% using a certified EHR in 2021 – an improvement of 52%

This indicates that overall, EHR adoption throughout Iowa clinics and practices has been successful over the past ten years.

Although dentists were considered an EP, our 2021 discussion with the IDA revealed that the biggest barrier for data exchange for dentists was that there were no standards available for the exchange of dental data. The ADA has now partnered with HL7 to develop standards for the exchange of dental data.[45]

Non-EP use of interoperable EHR technology has lagged. EHR incentives were not available through the Promoting Interoperability Program for all providers in the continuum of care. Both the provider practice and hospital surveys (reference Chapter 3) indicated that one of the significant problems to interoperability is healthcare organizations that do not use an EHR or cannot share data using their EHRs. Lack of an interoperable EHR also made it difficult to identify where to obtain healthcare information for patients seen outside of their provider organization.

2. Interoperability

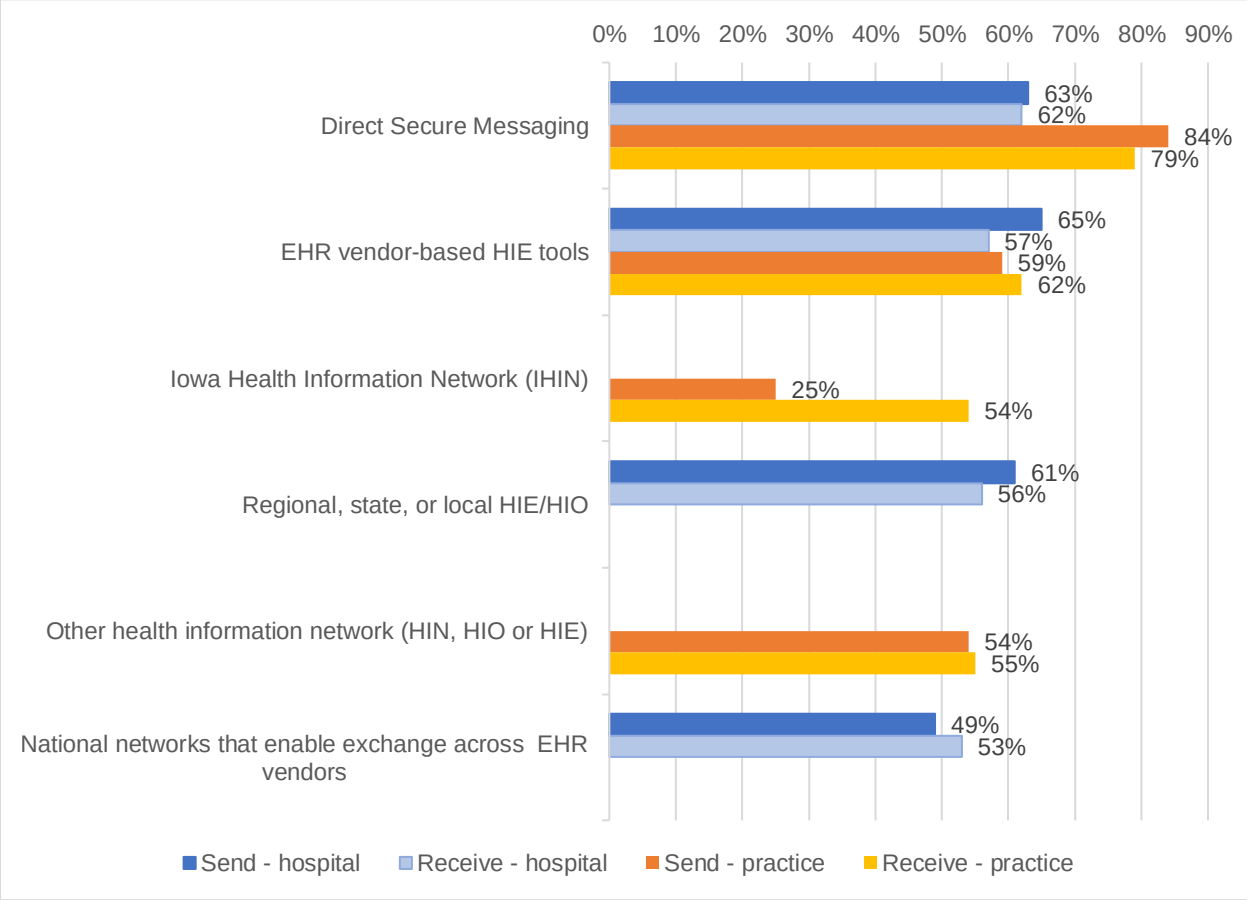
To obtain a complete picture of patient health, providers must be able to send and receive information from providers outside their practice/organization and provider network. Following EHR adoption for data capture, the next stage of the Promoting Interoperability Program was to focus on interoperable information exchange. Because none of these interoperable capabilities were possible in Iowa at the start of the program, the current state reflects the progress or change in the capabilities.

a. Exchange of Patient Information

According to the current environmental scans (reference Chapter 3), both Iowa hospitals and provider practices have made progress toward interoperable exchange using various types of technology (Figure 13). The hospital and provider practice surveys collected results using slightly different response categories, therefore some of the exchange methods are displayed only for hospitals or only for practices.

[45] HL7. FHIR. ADA "Dental Data Exchange 1.0.0 – CI Build". http://build.fhir.org/ig/HL7/dental-data-exchange/index.html

Figure 13. Hospital and Provider Practice Methods for Exchanging Information



- Direct Secure Messaging is the most common tool provider practices use to electronically send (84% of provider practices) or receive information (79% of practices). Direct is also used by 63% of hospitals to send, and by 62% of hospitals to receive information
- 59% of provider practices and 65% of hospitals interoperably send information thorough proprietary EHR vendor-based health information exchange tools. EHR vendor tools are also used by 62% of practices and 57% of hospitals to receive information
- IHIN/CyncHealth is used by 25% of provider practices to send information, whereas other HIN/HIOs are used by 54% of provider practices. 61% percent of hospitals use regional, state or local HIEs to send information and 49% use national networks
- IHIN/CyncHealth is used by 54% of provider practices to receive information, whereas other HINs/HIOs are used by 55% of provider practices. 56% of hospitals use regional, state or local HIEs to receive information and 53% of hospitals use national networks

It is common for both Iowa hospitals and provider practices to use multiple methods to send and receive information. Not only is Direct used by many provider types, it was also identified by provider practices as a high priority for future HIT implementation (reference Figure 7). Several provider practice respondents commented on a desire to improve usability of Direct by providing

a central registry for providers/practices to obtain contact information so that patient data could be more easily requested or sent, and the desire for more practices to use Direct.

ED and Inpatient Visit Alerts

The ability to send (or receive) a notification when a patient is admitted to a hospital, transferred to another facility, or discharged from the hospital (ADT) is a tool to help improve care coordination and prevent hospital admissions. ADT notifications may be exchanged using a variety of transport methods.[46] Some Iowa providers subscribe to a service (such as PatientPing) to exchange alerts and notifications.

- Currently, 87% of hospitals indicated that they provide electronic notifications to the patient's PCP when a patient visits their ED, although none indicated that they provided notifications to PCPs outside of their system (reference Chapter 3.B).
- The 2021 provider survey revealed that 50% of provider practices are able to integrate information from ADTs into their EHR (Figure 3).
- During the 2020 interviews with payers one payer reported using ADTs (from PatientPing) for utilization management (UM) and care management. One payer would like a bidirectional sharing system with providers for ADT information, which can feed their care management system.

b. Querying Patient Information

To make sure patients obtain the right care at the right time, it is important for providers to be able to query/find, and retrieve information for patients.

- Currently 77% of Iowa hospitals query electronically (reference Chapter 3.B)
- Currently more provider practices use EHR vendor-based HIE tools to query for patient information than use IHIN/CyncHealth or other HIE/HIOs
- Both hospitals and provider practices use multiple methods to query for patient information
- During the 2021 discussion with the IDA, Sum-IT learned that the Iowa Prescription Monitoring Program (PMP[47]) has required dentists to view the opioids prescribing database prior to prescribing opioids, and resulted in implementation of the capability to do this by at least some (dental) EHRs. IDA reports that the ability to query for this information has impacted opioid prescribing (resulted in improved care)

The 2021 provider practice survey (reference Chapter 3.A) underscored the fact that even among provider practices that are able to send, receive, query, and integrate information, there are still barriers to exchanging health data with providers who are not operating on an interoperable EHR. Also, survey responses such as these indicated that they would like the HIE

[46] https://www.healthit.gov/isa/sending-a-notification-a-patients-admission-discharge-andor-transfer-status-other-providers Accessed 12/07/2021.
[47] Refer to Iowa Board of Pharmacy: https://pharmacy.iowa.gov/prescription-monitoring-program Accessed 12/04/2021.

to be larger than state-wide: “Before we invest in HIE, we have to be able to access information via interstate, not just intrastate.” and “…need an HIE that can communicate with not only Iowa.”

In the most recent environmental scan, Iowa hospitals listed the most common issues with sharing patient health information:

- It is difficult to locate the Direct address of the provider to send the information
- Providers we would like to electronically send patient health information to have an EHR; however, it lacks the technical capability to receive the information
- Providers we would like to electronically send patient health information to do not have an EHR or other electronic system with capability to receive the information
- Many recipients of our electronic care summaries (e.g., CCDA) report that the information is not useful

As part of the current environmental scan, Sum-IT talked with key informants and state government representatives revealed the desire for using CyncHealth to promote widespread data sharing with state agencies (e.g., public health and Governor’s health policy team) to facilitate population health efforts. Interviews with payers revealed that one payer does not use IHIN because they perceive it as “unstable and not robust enough” for their needs. The most commonly stated belief was that payers (collectively) or the government need to manage the statewide HIE. State HIE funding has been eliminated with the end of the HITECH program; therefore, a significant issue is how to fund the HIE on an ongoing basis.

c. Integrating Patient Information

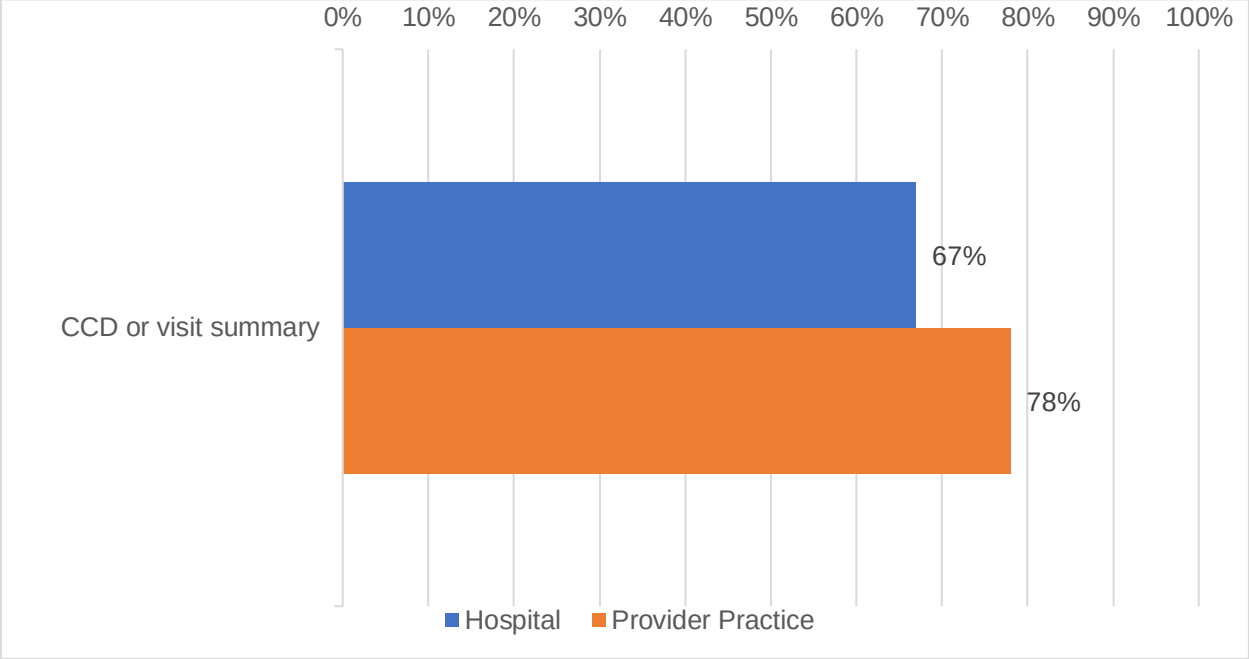
The current environmental scan revealed that most Iowa provider practices are integrating some types of data from outside organizations (92%; reference Chapter 3). There is variability in the types of information providers are integrating - such as labs, medications and visit summaries.

Care/Visit Summary or CCD/CCDA

The continuity of care document (CCD) or visit summary is a high priority document for exchange. The ability of EPs to provide clinical summaries after each visit was a 2014 Meaningful Use Core measure.[48] In the figure below we depict the progress hospitals and provider practices have made toward integrating CCDs from outside the practice (Figure 14).

[48] https://www.cms.gov/regulations-and-guidance/legislation/ehrincentiveprograms/downloads/13_clinical_summaries.pdf Accessed 12/07/2021.

Figure 14. Hospital and Provider Practice Integration of Summary of Care Information



- Currently, 67% of Iowa hospitals report that they either routinely integrate summary of care records that they have received electronically (48%) or they do this, but not routinely (18%).
- 78% of provider practices indicate they are able to integrate visit summaries from outside organizations.

Through Sum-IT's interviews with payers in 2020, we learned that obtaining CCDs is a near term goal to help one of the Payers in utilization management, including authorizations.

A 2021 discussion with the Iowa PCA revealed that FQHC data users may be given read-only access to EHRs other than their own to facilitate data sharing; however, it is not possible to integrate information into the FQHC EHR as structured data.

Integration of Additional Data into the EHR

The current provider practice survey illustrated variability in the types of patient data from outside organizations they are able to integrate as structured data into their EHR (Figure 3). Comparable hospital data is not available.

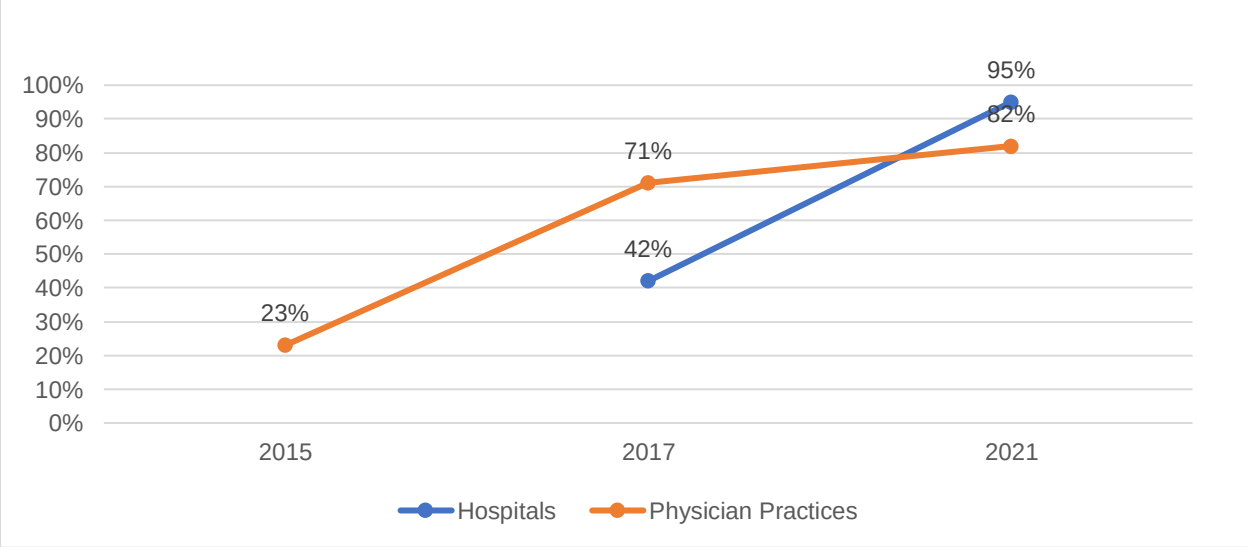
d. Patient Access to Healthcare Information

To receive incentives through the Promoting Interoperability program, hospitals and EPs needed to demonstrate (via "Core" rather than optional requirements)[49] they could enable patients access (e.g., via a portal) to view online, download and transmit (VDT) their health information. Meaningful Use Stage 3 (2018-2021) expanded the patient electronic access measure where the patient (or patient-authorized representative) is able to VDT their data; and

[49] https://www.healthit.gov/sites/default/files/meaningfulusetablesseries1_110112.pdf

access their data using any application of their choice that is configured to meet the technical specifications of the API in the provider's CEHRT.

Figure 15. Hospital and Provider Practice Patient Portals



- Currently 82% of provider practices and 95% of hospitals have a patient portal allowing patients to view their health information online (Figure 15)
- 73% of provider practices and 75% of hospitals reported patients can use an API to access their information

Hospitals appear to be building API capabilities (reference Chapter 3.B). This includes enabling patients to send health information to a third party via the portal (61%), and import information from outside records (55%). Among the hospitals that provided outpatient care, 55% indicated patients could submit data to patient portals, such as blood glucose or weight (Table 18).

Although Iowa providers and hospitals have made progress toward sharing data with patients, interviews with three Iowa payers revealed:

- One payer reported they offer APIs to share data with patients (primarily claims data).
- One (different) payer has a member portal where they share claims information and limited health information such as screening and other preventive care information with members.

e. Public Health and Registry Reporting

The Meaningful Use program included public health reporting, and required selection of use cases from several options and levels of active engagement. Public health registry options across the various stages of the program have included immunization, syndromic surveillance, specialized, electronic case reporting, public health, and clinical data.

- Hospitals could elect to demonstrate they could send information regarding reportable diseases to the state public health disease surveillance system (called the Iowa Disease Surveillance System [IDSS]).

- In Stage 1 (2011-2014) both EPs and hospitals could meet the menu criteria by demonstrating transmission of immunization information to the state registry (called the Iowa immunization registry information system [IRIS] which could not receive the data electronically at the time).[50]
- EPs and hospitals could demonstrate the ability to incorporate clinical lab/test results into their EHR as structured data.

In this section, we summarize progress in reporting public health and other registry information.

Labs (and reportable diseases)

IME was instrumental in providing support of public health registry connections (from SMHP, 2020, p.84) "the funds requested through the IAPD-U will be used to support activities for Electronic Initial Case Reporting (eICR), electronic lab reporting (eLR), immunization registry (IRIS), and provider connections to each of the Public Health registries."

The current environmental scan identified that:

- 66% of Iowa hospitals are fully or primarily automated in terms of electronic reportable laboratory result reporting (reference Chapter 3).
- 25% of hospitals are able to electronically report cases (fully or primarily automated); and
- 33% are able to electronically report to public health registries.

The current Iowa provider survey revealed that 78% of provider practices were able to integrate lab or pathology results from an outside organization into their EHR (Figure 3). Note that this question pertained to all labs and was not limited to reportable diseases.

Immunizations

The current environmental scan revealed that 80% of Iowa hospitals are fully or primarily automated in terms of immunization registry reporting. Comparable data is not available for provider practices.

e-prescribing of controlled substances

During the 2021 discussion with IPA, Sum-IT learned that electronic prescribing is used almost universally in the ambulatory environment. Furthermore, pharmacies use the NCPDP standard for 2-way communication between prescribers and pharmacies The Iowa Prescription Monitoring Program (PMP) is actively working on interstate connectivity and interoperability with multiple midwestern states. Currently, 100% of Iowa hospitals indicate they have enabled electronic prescribing for controlled substances (reference Chapter 3.B).

[50] Iowa Department of Public Health. Promoting Interoperability Program. Iowa Department of Public Health readiness (includes hyperlinks to Public Health Meaningful Use Letters over time). Reference May 2013 letter, for example. https://idph.iowa.gov/informationmanagement/meaningful-use Accessed 12/07/2021.

f. Additional Types of Information Exchange and Use

Exchange of healthcare information is protected under the Health Insurance Portability and Accountability Act of 1996 (referred to as the HIPAA Privacy Rule) for the purposes of treatment, payment or operations.[51] Information that is essential to the health care system includes health care operations such as administrative, financial and quality improvement activities conducted by providers and health plans. This section summarizes progress with interoperable exchange with Iowa payers, and also hospital/provider use of information to manage the health of their population.

Data Exchange with Payers

A common theme with the 2021 environmental scan (Chapter 3) is that there is much room for improving interoperable data exchange between payers and providers. The 2020 interviews with payers made it clear that providers must build custom interfaces (point-to-point connections) to obtain enrollment information and to submit payer-required information (e.g., prior authorization or data for HEDIS measures) to the payer in a payer-required format. This allows the payers to use a basic ETL process to ingest information from all providers. None of the payers use the IHIN/CyncHealth.

Analytics and use of Data

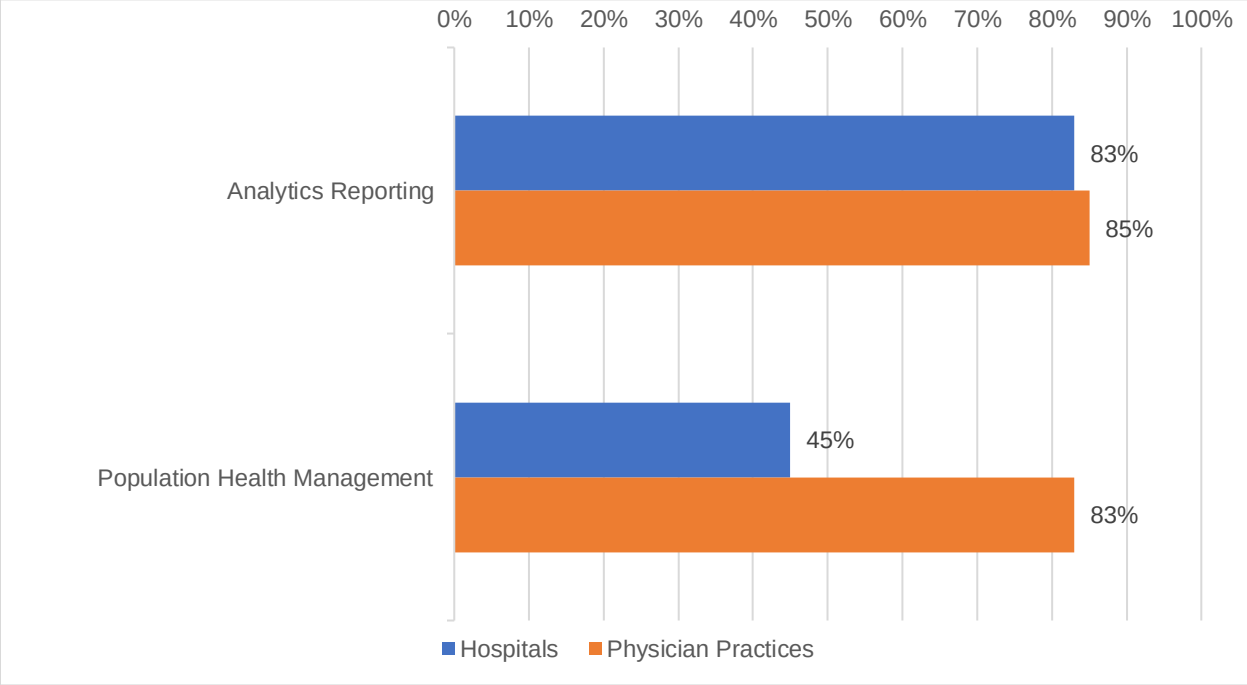
Certified EHRs enable a variety of analytic capabilities. However, it is up to the providers to use their EHR products to provide actionable information to improve quality and/or efficiency of care. For the 2021 provider practice survey, we referenced the HIMSS Adoption Model for Analytics Maturity[52] and learned that providers were engaged in a variety of data analytic, population management and care coordination activities using the EHR data (Figure 4).

Current Iowa hospital data indicated that 65% of hospitals are able to export multiple records from their EHR. The most common uses of the EHR data are depicted in Figure 16.

[51] https://www.hhs.gov/hipaa/for-professionals/privacy/guidance/disclosures-treatment-payment-health-care-operations/index.html

[52] Adapted from HIMSS Adoption Model for Analytics Maturity. https://www.himss.org/what-we-do-solutions/digital-health-transformation/maturity-models/adoption-model-analytics-maturity-amam

Figure 16. Hospital and Provider Practice Use of EHR data



- 83% (33/40) of hospitals reported currently using their EHR for analytics and reporting and 45% for population health management
- 85% of provider practices reported currently using their EHR data for analytics and reporting, and 83% for population health management.

B. Gaps and Opportunities

In this next section, we highlight four areas where Iowa has opportunities to improve the interoperability of health data.

Interoperable EHR use must extend across the continuum of care.

CMS Promoting Interoperability Programs were only for EPs and hospitals. Many types of health care providers were not eligible for assistance,[53] and as a result, provider practices are still working to achieve interoperable information exchange with nursing facilities, labs, and SDOH community-based providers. This means that even the providers who have fully interoperable EHR capabilities must use manual processes to communicate with these (often ancillary) providers. Thus, providers will not be able to turn off the fax machines until all providers in the continuum of care are connected to interoperable platforms.

[53] https://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms

Providers are not contributing financially nor routinely using the state HIE.

An ONC-funded multi-state interim evaluation of State HIE programs conducted in 2014 by NORC[54] stated that "Providers in all states conveyed a general sentiment that a state-based HIE effort is important because of the neutrality of their role. Several providers found that the program created a neutral space for organizations that are usually competitors (in particular, hospitals and hospital systems) to work toward the same vision of meaningful data exchange."

The current environmental scan indicates that Iowa hospitals, providers and state government stakeholders would like to have an HIE that is used by most Iowa medical providers and can be a single source of health information for Iowans. However, health information exchange in Iowa is not operating as intended in the Promoting Interoperability Program –where the goal was to have a centralized "hub" that would allow providers to make one connection and be able to access many providers (i.e., one-to-many connections versus. many one-to-one connections). Many Iowa provider practices and hospitals use proprietary vendor-based EHR products to share patient data. Currently CyncHealth is not widely used by providers and payers which limits the amount of information available and leads to concerns about the financial sustainability of the HIE in Iowa.

The value proposition for the HIE remains the same today as it did at the start of the State HIE Cooperative Agreement Program in 2009: the ability to securely exchange patient information throughout the continuum of care will improve the value of the statewide HIE as more complete patient information becomes accessible electronically. Presumably, as more providers make patient data available through the HIE, additional providers will subscribe to the service and the value and financial sustainability of the HIE is improved. A recent subscriber to CyncHealth is the CJIS; other similar state and social agency uses for the HIE should be explored. Additional organizations with a business need to transmit health data could be encouraged to use CyncHealth.

Payers are not using or contributing financially to the state HIE.

For Iowa providers to meet the requirements of private payers, including Medicaid managed care organizations, providers must develop custom point-to-point connections with payers for sending patient prior authorization information and required HEDIS metrics. If payers used the HIE, it could ease the burden of Iowa providers in exchanging information with payers. Although Iowa's largest private insurer conceptually agreed to provide financial support for the HIE in 2011 (reference Chapter 1), to date Medicaid is the only payer that contributed financially to the Iowa HIE. During the 2020 interviews with payers, they confirmed they do not plan to use or financially support the Iowa HIE.

Patients have only limited access to their information.

Iowa providers and hospitals are making progress in enabling patients to access their data via a portal and/or APIs.

[54] NORC. (2015) "Evaluation of the State HIE Cooperative Agreement Program. (p. 19) "https://www.healthit.gov/sites/default/files/reports/provider_experiences_with_hie_june_2015.pdf

- Currently about half of hospitals indicate that patients can submit patient generated data or import information from other provider organizations into their portal
- Three quarters of hospitals indicate that patients can use apps to access their clinical information, but less than 50% have apps that meet FHIR specifications

Patients receiving care from various organizations will still find that information remains fragmented across unaffiliated providers. Although patients may access their information from each separate provider, this information is not available through a single portal or access point.

Important data are not flowing freely.

Hospital and provider practice EHRs capture a broad range of patient data; however, there is wide variation in the types of data from outside organizations that can be integrated as data into these hospital and practice EHRs. Lack of integration limits the usefulness of the shared data.

Information from some types of care providers may not be easily accessible. In the current hospital survey, a majority of Iowa hospitals responding to the question (77%) indicated that they "experience greater challenges exchanging data (e.g., sending, receiving) across different vendor platforms."

C. Summary

Looking back over this time period since HITECH was enacted, it is clear that much progress has been made in EHR implementation, use, and the interoperability of health care data in Iowa. There is a need to continue to increase interoperability across the continuum of care, to address EHR vendor related data sharing issues, and to work toward a multi-state comprehensive HIE platform.

Objectives of HITECH [55] and the IME Promoting Interoperability Program included improving care, advancing coordination across healthcare, and realizing administrative efficiencies to contain healthcare costs.[56] Although progress has been made, more work is needed to improve interoperability to realize the full return on HIT investment in areas such as reducing hospital readmissions and avoidance of repeat testing. Continued progress toward interoperable EHR use for all Iowa providers is needed to address gaps in data sharing and integration.

[55] Reference Title XII, subtitle A, Part 1, for example: https://www.congress.gov/111/plaws/publ5/PLAW-111publ5.pdf Accessed 12/04/2021.
[56] https://dhs.iowa.gov/ime/providers/tools-trainings-and-services/medicaid-initiatives/EHRincentives Accessed 12/07/2021.

Chapter 5: Looking Forward

Over time, as the Medicare and Medicaid EHR Incentive Programs (now known as the Promoting Interoperability Program) has evolved, the focus has shifted from implementation of EHR software to technology for data exchange. The initial focus was on providers, and has gradually shifted to improving access for patients and enabling collaborative decision-making for patients and all of the care team. While this chapter presents information on HIT from a Federal perspective, the Federal strategic plans and rules guide HIT developments in Iowa.

A. Current and Upcoming Government Regulations

The main government regulation that will be the focus for interoperability and data sharing in the next three years is the 21st Century Cures Act[57]. According to the ONC, the 21st Century Cures Act (also referred to as the Cures Act) "…supports seamless and secure access, exchange, and use of electronic health information. "Key provisions in the Cures Act that are designed to "…advance interoperability; support the access, exchange, and use of electronic health information (EHI); and address occurrences of information blocking.[58]"

The original deadline for information blocking was extended due to COVID-19. The current timeline for the Information Blocking rule[59] is depicted in Figure 17 below. On April 5, 2021, the information blocking rule went into effect. This rule means that healthcare providers must make a core set of clinical data available to patients in a timely fashion to encourage interoperability and portability of health data. This also means that providers must review their HIPAA policies and practices for sharing patient data.

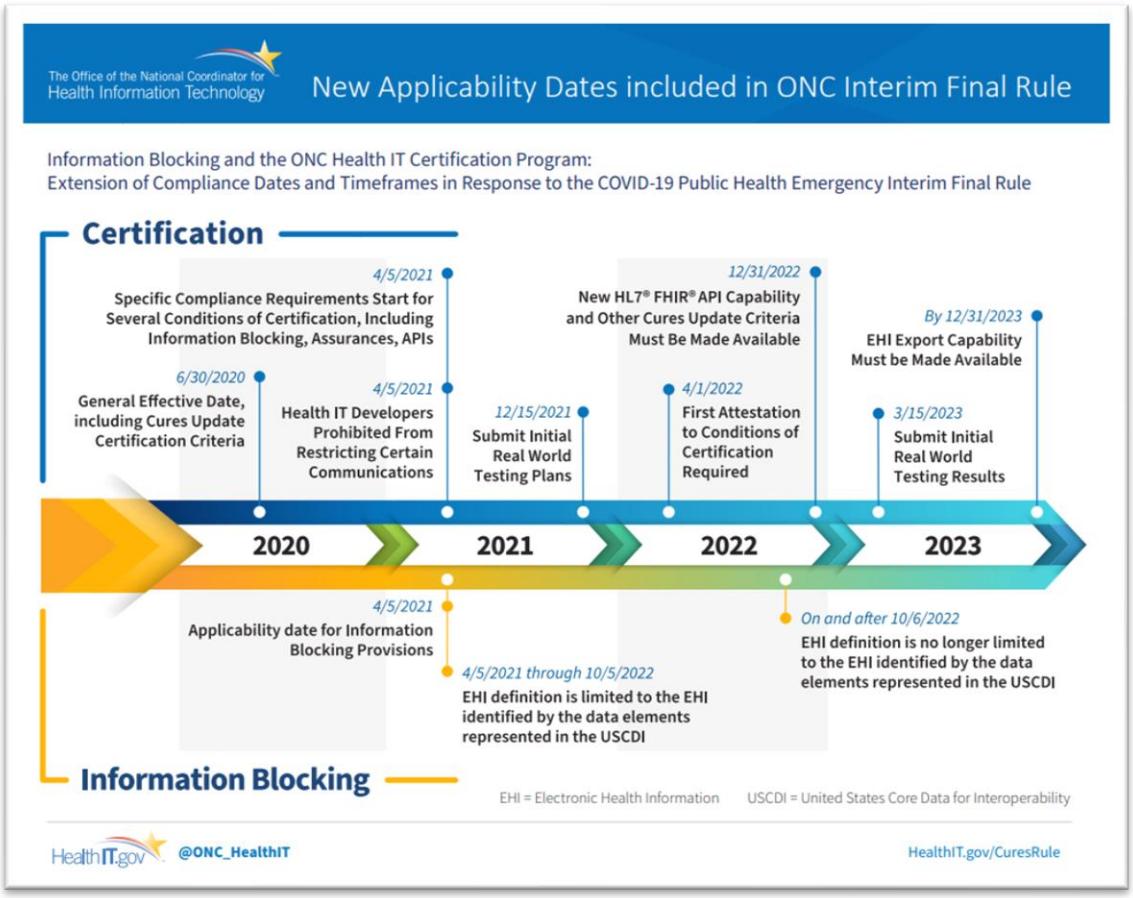
The CMS Interoperability and Patient Access final rule[60] applies to CMS-regulated payers. The new rule could ultimately impact other payers, because of the requirements for payer-to-payer data exchange, United States Core Data for Interoperability (USCDI), and FHIR standards which include a patient access and provider directory API. Patients will then be able to access both claims and clinical information via an app of their choice. Payers will be able to exchange USCDI clinical information with other payers and easily combine incoming data with existing patient data.

Today payers may receive many of the data elements necessary in C-CDA files, the files then need further processing to extract discrete data elements. Healthcare providers will also be required to make USCDI data available to patients through the application of the patient's choice, so many EHR vendors and EHR teams at healthcare providers are updating the EHR to accommodate these new requirements.

---

[57] U.S. Department of Health and Human Services, Office of the National Coordinator for Health IT. "ONC's Cures Act Final Rule." May 1, 2020. https://www.healthit.gov/curesrule/.
[58] https://www.federalregister.gov/documents/2020/05/01/2020-07419/21st-century-cures-act-interoperability-information-blocking-and-the-onc-health-it-certification
[59] https://www.healthit.gov/cures/sites/default/files/cures/2020-10/Highlighted_Regulatory_Dates_All.pdf
[60] https://www.cms.gov/Regulations-and-Guidance/Guidance/Interoperability/index

Figure 17. Information Blocking Rule Timeline



As part of the Cures Act final rule, ONC established certification criterion that requires use of the Health Level Seven (HL7®) Fast Healthcare Interoperability Resources (FHIR®) data exchange standard for application developers to connect software to certified EHRs. While there has been growth in the use of APIs to support access, exchange and use of health records, work is still needed to develop APIs that use the FHIR standards. Barker[61] (2021) studied the integration of applications and software with the EMR and revealed that only 22% of EHRs and APIs evaluated supported the FHIR standard.

Examples of use cases for FHIR include: an API that allows patients to access their own medical record through a web portal or mobile application, document sharing to build a repository of documents for a medical record and decision support which can be used in many ways to support patient care[62]. In Iowa, 73% of the providers we surveyed have implemented

[61] Barker, W. Johnson, C. (2021). The ecosystem of apps and software integrated with certified health information technology, *Journal of the American Medical Informatics Association*, Volume 28, Issue 11, Pages 2379–2384, https://doi.org/10.1093/jamia/ocab171

[62] HL7 FHIR Use Cases Common Usages, Release 4. https://www.hl7.org/fhir/usecases.html.

patient APIs. For practices without this capability, it is a top priority following implementation of Direct Secure messaging. Similarly, 65% of hospitals have implemented patient APIs.

With the rules for information blocking, USCDI and use of APIs in place, interoperability will be realized to a great extent.

B. HIT Strategic Plans

Over the last dozen years, the ONC has engaged in strategic planning and published three critical documents:

- ONC 10-year Vision and interoperability plan, concept paper[63]
- 21st-Century Cures Act[64]
- 2020-2025 ONC HIT strategic plan[65]

In this section of the document, we summarize the main features of the two plans, and contrast where the regulations for the 21st Century Cures Act may have gaps in terms of the HIT topics that are addressed.

Goals of the ONC's Cures Act Final Rule, are to support patient-centered healthcare technology. It will primarily focus on information blocking and ONC certification criteria, however other goals are also important and are sometimes at cross purposes. For example, it is difficult to encourage standardization while at the same time incentivizing innovation. Privacy and security of health data is sometimes at odds with interoperability. The Cures Act is important because it will address both of these goals and aims to:

- Support patient access to their Electronic Health Information (EHI) while protecting their privacy and providing security for that data.
- Provide transparency and stimulate innovation in health care by minimizing API development and maintenance costs
- Reduce the burden on providers and health systems by making physician chart requests easy. The new USCDI data classes and data elements are an effort to standardize data and support interoperability between systems as well as helping to meet the ability to provide care that is coordinated across all providers. Table 20 below presents use cases for interoperability and data sharing expected over the next 5 years, as described within the three plans.

[63] U.S. Department of Health and Human Services, Office of the National Coordinator for Health IT. "Connecting Health and Care for the Nation: A 10-Year Vision to Achieve an Interoperable Health IT Infrastructure". 2014. https://www.healthit.gov/sites/default/files/ONC10yearInteroperabilityConceptPaper.pdf

[64] U.S. Department of Health and Human Services, Office of the National Coordinator for Health IT. "ONC's Cures Act Final Rule." May 1, 2020. https://www.healthit.gov/curesrule/.

[65] U.S Department of Health and Human Services, Office of the National Coordinator of Health IT. "2020-2025 Federal Health IT Strategic Plan". October, 2020. https://www.healthit.gov/topic/2020-2025-federal-health-it-strategic-plan

Table 20. Use Cases Depicted in ONC Plans and Timeframes

Use Cases and Regulations	ONC 10-year interoperability plan, concept paper	21st-Century Cures Act	2020-2025 ONC HIT strategic plan
Individuals regularly contribute information to their EHRs for use by members of their care team	By 2020		
Individuals integrate data from their health records into apps and tools that enable them to set and meet their own health goals	By 2020		
Primary care providers (PCP) and researchers use data to understand and manage diabetic patients	By 2020		
Clinical settings and public health are connected through bi-directional interfaces that enable seamless reporting to public health departments and seamless feedback and decision support from public health to clinical providers	By 2020		
Individuals manage information from their own electronic devices and share that information seamlessly across multiple electronic platforms as appropriate	By 2024		
PCP can select effective medications for patients with certain conditions based on their genetic profiles and results of comparative effectiveness research	By 2024		
Individuals, care providers, public health and researchers contribute information and learn from information shared across the health IT ecosystem, with rapid advancement in methods for deriving meaning from data without sharing protected health information (PHI).	By 2024		
Information Blocking		2021 - 2022	2020-2025
ONC certification criteria:		2021-2023	
USCDI data classes and data elements – data standardization		2021-2022	
New HL7 FHIR Capability		2022	2020-2025
Patients and their caregivers use information technologies such as patient portals, mobile apps			2020-2025
Patients and their caregivers use communication technologies like secure messaging and email			2020-2025

In the 10-Year Vision, 6-year use cases (2020):

- **Individuals regularly contribute information to their electronic health records for use by members of their care team.** There has been progress on individuals contributing

information to their EHRs with growth in home monitoring and patient generated data. However, there are still variations in how care teams use this data for patient care decisions.[66]

- **Individuals integrate data from their health records into apps and tools that enable them to better set and meet their own health goals.** Apps have been developed and are now advertised on TV in the same way as medications. Some providers "prescribe" use of apps to support patients managing chronic conditions such as diabetes. Apps also help consumers to set health goals.

- **Primary care providers and authorized researchers are able to understand how well controlled diabetic patient population's glucose levels (i.e., A1C values) are and how often those patients have been hospitalized based on standardized information from multiple sources.** More can be done with the diabetic population and other populations with chronic diseases that can be managed. It is important to renew efforts to develop the technology infrastructure to support: data sharing, patient health risk assessments, HIE, Patient Health Records, portals.

- **Clinical settings and public health are connected through bi-directional interfaces that enable seamless reporting to public health departments and seamless feedback and decision support from public health to clinical providers.** Iowa hospitals and providers reported barriers to exchanging data with public health. State IT systems may not have been designed with interoperability and data exchange as a goal. In the future, providers could use analytics and Artificial Intelligence to connect across the care continuum and provide decision support.

In the 10-year Vision, 10-year use cases (2024) include:

- Individuals manage information from their own electronic devices and share that information seamlessly across multiple electronic platforms as appropriate
- Primary care providers can select effective medications for patients with certain conditions based on their genetic profiles and results of comparative effectiveness research.
- Individuals, care providers, public health and researchers contribute and learn from information shared across the health IT ecosystem, with rapid advancement in methods for deriving meaning from data without sharing PHI.

We have more visibility into how to make these use cases a reality, but there is much work to do.

[66] Koopman RJ, Canfield SM, Belden JL, Wegier P, Shaffer VA, Valentine KD, Jain A, Steege LM, Patil SJ, Popescu M, LeFevre ML. Home blood pressure data visualization for the management of hypertension: designing for patient and physician information needs. BMC Med Inform Decis Mak. 2020 Aug 18;20(1):195. doi: 10.1186/s12911-020-01194-y. PMID: 32811489; PMCID: PMC7432548.

The 2020-2025 Federal Health IT Strategic Plan acknowledges that healthcare has not kept pace with other industries in terms of individuals accessing their own information when and where we need it. Our health data has been digitized, but information sharing and interoperability of systems is still limited. The Strategic Plan goes beyond electronic health information itself into a focus on key capabilities that support providers and consumers that are enabled by health IT such as: public health surveillance, telehealth, and remote monitoring. These require strengthening of the health IT infrastructure.

This Strategic Plan emphasizes:

- Interoperability of EHI and the reduction of provider burden
- EHR product and price transparency
- Allowing individuals to select the technology they wish to use to access and control their information
- Opening up entirely new business models for the health app economy.

This Strategic Plan is outcomes-driven, with goals focused on meeting the needs of individuals, populations, caregivers, healthcare providers, payers, public health professionals, researchers, developers, and innovators. In Iowa, the provider burden is high given that payers can require different methods for interoperability. There are still providers throughout the care continuum who have not made progress on interoperability and this impacts all providers (e.g., may still need to manually fax information to non-interoperable providers).

Individual patients and their caregivers use information technologies such as patient portals, mobile apps, and communication technologies such as Direct and secure email, to access their health information, manage treatment of their health conditions, and interact with healthcare providers. Key features of the Strategic Plan that support interoperability are:

- HL7 FHIR standard for APIs
- The plan supports data sharing and addresses information blocking

We have seen great progress toward interoperability across all providers, even across different organizations. Our 2021 Environmental Scan data showed that the use of vendor-based HIE tools is the most used method to query for information outside the organization. It appears to be an acceptable method compared to other methods such as providing an outside organization access to the EHR. The challenge at hand is addressing how to shift to using a “neutral” HIE platform, which is what the HITECH funding for HIEs was meant to accomplish.

C. Opportunities

In this section we highlight some of the biggest opportunities for building a nationwide, interoperable health infrastructure to benefit Iowans.

1. Build on Lessons Learned from the COVID pandemic.

The emergence of the COVID-19 pandemic in 2020 highlighted the need for a nationwide interoperable health infrastructure. Our 2021 Environmental Scan data from Iowa hospitals

indicated that many hospitals did not electronically receive information from outside providers needed to effectively treat COVID-19. Efforts to monitor and manage the spread of the virus were hindered by the lack of uniformity in terms of: data collection, storage, sharing and supply chain management. These same gaps impact the next phase of managing the pandemic: ongoing identification of outbreaks and planning rollout and delivery of vaccines.

The public health emergency due to COVID-19 created an urgent need for innovation and has provided a call to action for progress in interoperable data sharing. Health care consumers benefitted from news briefs with public health data presented daily, they witnessed the interconnectedness of the individual with their local, regional, and national community. Providers leveraged their technology to provide telehealth or virtual visits with patients. In areas such as behavioral health, some payers reported that over 60% of behavioral health customers conducted virtual sessions.[67] A key to this growth in telehealth was due to exceptions that were granted to regulations on payment for telehealth services. It remains to be seen what the permanent rules will be for telehealth reimbursement, but customers/patient satisfaction with virtual visits will likely keep virtual service offerings in demand post-pandemic.

Due to COVID relief funds, CJIS will be able to connect to IHIN/CyncHealth. This is an opportunity to connect state infrastructure to the HIE. Expanded use of IHIN/CyncHealth is needed to provide access to provide a single source of information for all Iowans and data-driven healthcare to patients and providers.

It is clear that we still need the right data to be available to the right people at the right time and in 2020-21, we did not always have it. Some COVID dashboards presented comparisons between the US and other countries, which highlighted gaps in the US HIT systems to monitor and report on infections, hospitalizations and vaccine rates. The COVID pandemic has presented a poignant use case where it is clear that provider and state data are siloed. The need for a nationwide interoperable health infrastructure could not be clearer. The conditions are ripe for progress.

2. Improve Interoperability Between Providers and Payers

Currently Iowa Medicaid has two large managed care plans. As an example of how to improve interoperability, in our interviews with payers we learned that payers require providers to send them information (e.g., patient prior authorization and HEDIS performance data) using the payer's IT interface. This means that each provider must have a custom interface with the payer to comply. The data blocking rule does not specify rules for payers. Currently, payers are not required to abide by any data exchange or interoperability standards with providers making this data exchange laborious and expensive for providers.

More could be done to improve interoperability if IME required managed care providers to use the state designated HIE, CyncHealth. This could be accomplished as part of the routine contracting/agreements with the managed care plans. Today, each Iowa payer requires providers to comply with their own private information exchange system, including their own

[67] Lagasse, J. (2021). Telehealth reimbursement parity spurs insurer concerns of overutilization. Healthcare Finance. https://www.healthcarefinancenews.com/news/telehealth-reimbursement-parity-spurs-insurer-concerns-overutilization-though-future-bright

standards and data formats, which does not leverage use of the HIE infrastructure IME helped pay for. The support of payers is needed to help sustain the HIE and it is realistic considering the benefits payers can realize from an HIE (ex: providers ability to access prior tests/images and avoid repeat testing would reduce costs).

3. Build on Provider and Patient attitudes toward interoperability

The Cures Act rules for information blocking, APIs and FHIR standards for data sharing defines what is needed and provides the timeline for compliance (reference Table 20). Even though progress has been made, our KIIs with state leaders indicate they perceive there is still a persistent desire on the part of providers to protect market share that is still resulting in information blocking. The new USCDI data classes and data elements provide us with a well-defined, structured minimum data set. Some providers are willing to share, but the issue of data security and the possibility of an information breach leads risk averse organizations to halt data sharing efforts. We made progress toward trusted and secure data exchange mechanisms, but socio-technical issues – the willingness to share data, the legal side and the political (business/financial/market share) side remain to be solved.

Research findings reveal that physicians believe HIE will have generally positive effects, though over 70% still have concerns about privacy.[68] Even if physicians see the benefits of HIE and are willing to participate, cost of the subscription to participate in the HIE is still an issue for many.

While focus was on EHR as the primary source of patient health data, there are additional sources of information that need to be integrated as we continue to progress with digital health. How will data generated from telehealth encounters and data from remote patient monitoring be incorporated into the EHR and become interoperable? A key strategy is to increase the use of APIs for patients and providers.

D. Recommendations for Actionable Follow-up

In this section, we present recommendations for HIT stakeholders in Iowa to take advantage of the opportunities highlighted in this document to broaden the impact of interoperability.

- Providers must meet 21st Century Cures Act timelines
    - Standardization of data through the USCDI
    - Set target goals for expanding capability to deploy HL7 FHIR APIs
- The State or a public-private partnership must develop a business model and strategic direction for HIE that will work in the long-term.
    - Define the goal as data sharing across EHR and HIE products and organizations
    - Outline steps that can be taken to strengthen and build from the state-level to regional and ultimately to the national HIE connectivity model Trusted Exchange Framework and Common Agreement (TEFCA) as it matures.

---

[68] Pew research, 2020 - Patients Seek Better Exchange of Health Data Among Their Care Providers. https://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2020/03/patients-seek-better-exchange-of-health-data-among-their-care-providers

- Consider encouraging more provider participation in national HIEs (e.g., CommonWell, e-Health Exchange, Strategic Health Information Exchange Collaborative [SHIEC], Carequality), which several hospitals reported using in the current Iowa hospital survey.
- Identify HIE use cases for state government, since our interviews with state officials indicated a desire to access summary information to manage medical resources and improve population health.

- Build on the progress of consumer empowerment by placing more patient data in the hands of patients. Based on current Iowa hospital data, there are three areas of opportunity to engage patients and meet their needs for data exchange:

  - Import patient medical records from other organizations into the hospital portal
  - Electronically transmit (send) health/medical information to a third party from the hospital portal
  - Submit patient-generated data (e.g., blood glucose, weight)

  There is room for improvement in all of these areas as all hospitals reported less than 70% offer patients these functions.

Healthcare has typically used proprietary products to share data limiting patient access to health records. The Pew survey (2020),[69] found that patients want access to all information in their health records. AHA data also indicated that increased use of APIs is needed to provide patients easy access to their health records. The Cures Act will encourage widespread adoption of APIs with deadlines for providers to make them available by 2022. This will mean that patients will no longer bear responsibility for transferring information, remembering medical details and delivering records to their various providers.

Continue to address concerns about privacy and security of data to move stakeholders forward in readiness to expand data exchange. Progress on interoperability is not only about the technology, but also and importantly it is about the people using the technology – the socio-technical aspects of HIT. For example, we saw that US citizens were not prepared to use cell phones to share data on COVID exposure to help manage the spread of infection. There is still a lack of trust in who might get the data and how it might be used and a strong desire for protecting personal information.

Throughout this report we have highlighted progress in Promoting Interoperability and the impact of the HITECH program over time in Iowa.

As the TEFCA are finalized, they will provide the IME more guidance on both data and technical governance and legal governance; and a broad data sharing path forward. Implementations of APIs for both payers and providers through various regulatory requirements are assisting in moving interoperability of health information forward.

[69] Pew research, 2020 - Patients Seek Better Exchange of Health Data Among Their Care Providers. https://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2020/03/patients-seek-better-exchange-of-health-data-among-their-care-providers

Our discussions with state government officials indicated their willingness to work to increase the level of health/healthcare data sharing within the state as a convener and an arbiter of standards. The Iowa OCIO can define standards for data use of PII vs. aggregated information to improve privacy thus taking the pressure off the individual agencies to develop these standards.

To continue to make progress in Iowa, we recommend reviewing the HIT opportunities defined in this chapter and establishing broad objectives and priorities for the future. Strategic planning is then needed to go beyond broad objectives to define use cases, specific tactics, tasks and timelines so that Iowa can continue to make progress on interoperability.

Appendix A. List of Acronyms and Abbreviations

Acronym	Definition
ADA	American Dental Association
ADT	Admission, discharge or transfer
AHA	American Hospital Association
AL	Assisted Living
API	Application programming interface
ARRA	American Recovery & Reinvestment Act of 2009
CAH	Critical access hospital
CCD	Continuity of Care Document
C-CDA	Consolidated Clinical Document Architecture
CCDS	Common Clinical Data Set
CCHIT	Certification Commission for Health Information Technology
CEHRT	Certified electronic health record technology
CJIS	Criminal Justice Information System
CMS	Centers for Medicare & Medicaid Services
DHR	Department of Human Rights
DHS	Department of Human Services
eCQM	Electronic Clinical Quality Measures
ED	Emergency Department
EH	Eligible hospital
EHR	Electronic health records
EP	Eligible professionals
eRX	Electronic Prescribing
FHIR	Fast Healthcare Interoperability Resources
FQHC	Federally Qualified Health Centers
HEDIS	Healthcare Effectiveness Data and Information Set
HHA	Home Health Agencies
HIE	Health information exchange
HIN	Health information network
HIO	Health information organization
HIPAA	Health Insurance Portability and Accountability Act
HISP	Health information service provider
HISPC	Health Information Security & Privacy Collaboration
HIT	Health information technology
HITECH	Health Information Technology for Economic Clinical Health
HITSP	Health Information Technology Standards Panel
IDA	Iowa Dental Association
IDPH	Iowa Department of Public Health
IDSS	Iowa Disease Surveillance System
IHCA	Iowa Health Care Association

IHIN	Iowa Health Information Network
IME	Iowa Medicaid Enterprise
IP	Inpatient
IPA	Iowa Pharmacy Association
IRIS	Immunization Registry Information System
ISA	ONC Interoperability Standards Advisory
KIs	Key Informants
KIIs	Key Informant interviews
LTPAC	Long Term Post-Acute Care Providers (SNF, ICF)
LTC	Long Term Care
MU	Meaningful Use
NPI	National Provider Identifier number
OCIO	Office of the Chief Information Officer
ONC	Office of the National Coordinator for HIT
ONC-ACB	ONC-Authorized Certification Bodies
ONC-ATL	ONC-Authorized Testing Laboratories
OP	Outpatient
PACS	Picture archiving and communication system
PCA	Primary Care Association
PCP	Primary care providers
PHI	Protected health information
PMP	Prescription Monitoring Program
POC	Point of contact
RHC	Rural Health Centers
SDE	State Designated Entity
SDOH	Social determinants of health
SHIEC	Strategic Health Information Exchange Collaborative
SMHP	State Medicaid HIT Plan
TEFCA	Trusted Exchange Framework and Common Agreement
USCDI	United States Core Data for Interoperability
VA/DOD	Veteran's Affairs or Department of Defense